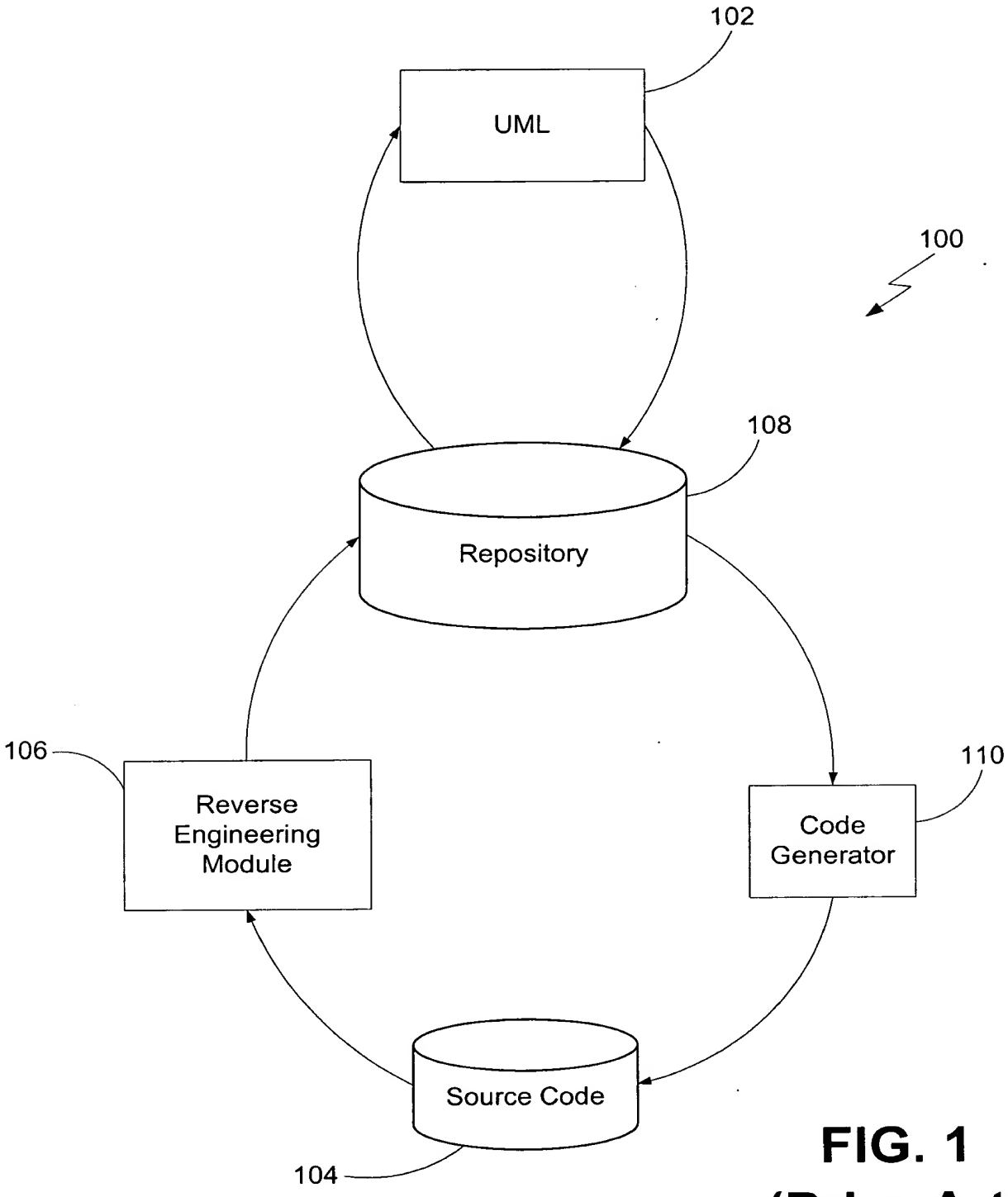


FIG. 1
(Prior Art)

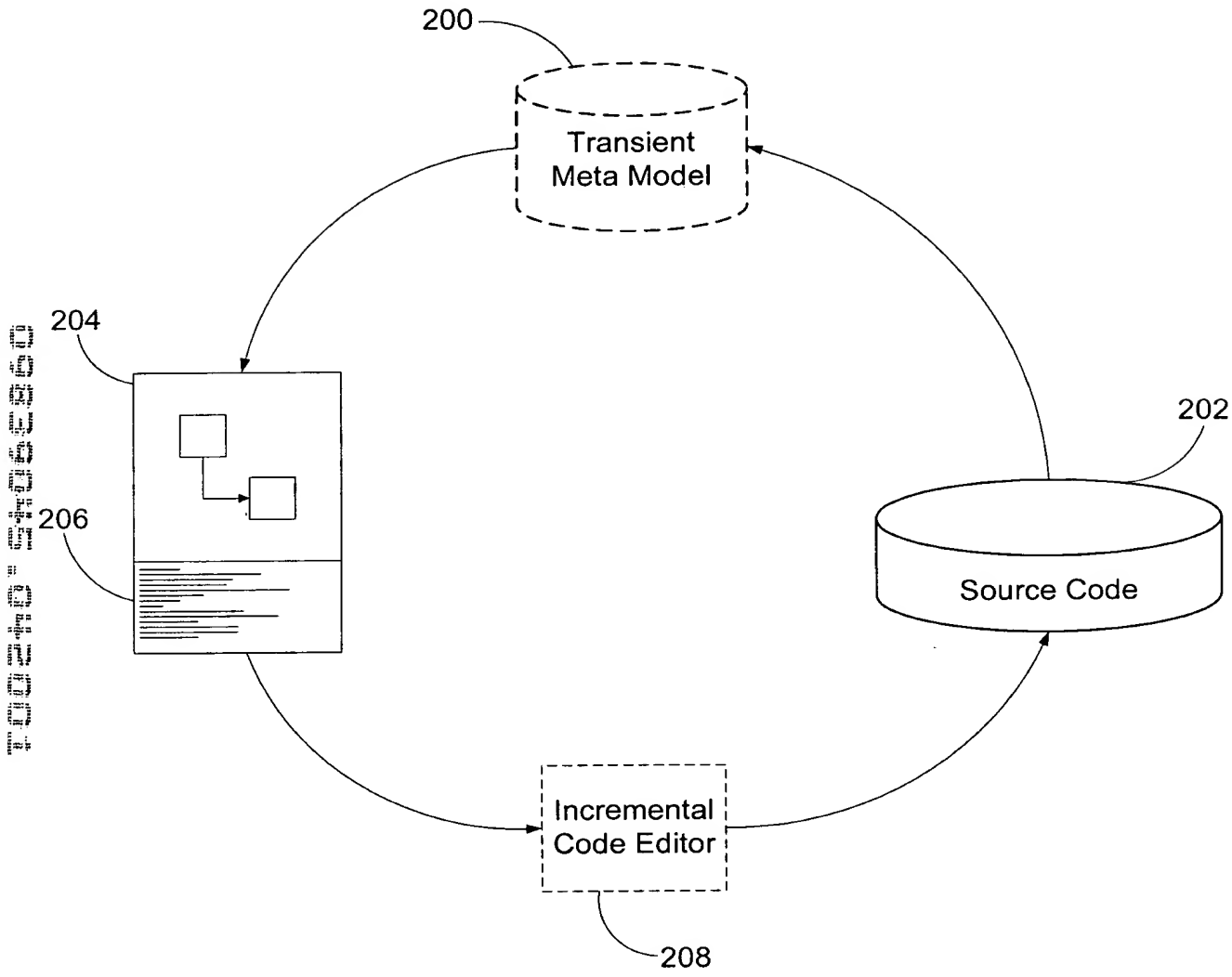

200
Transient
Meta Model
204
206
202
Source Code
Incremental
Code Editor
208

FIG. 2

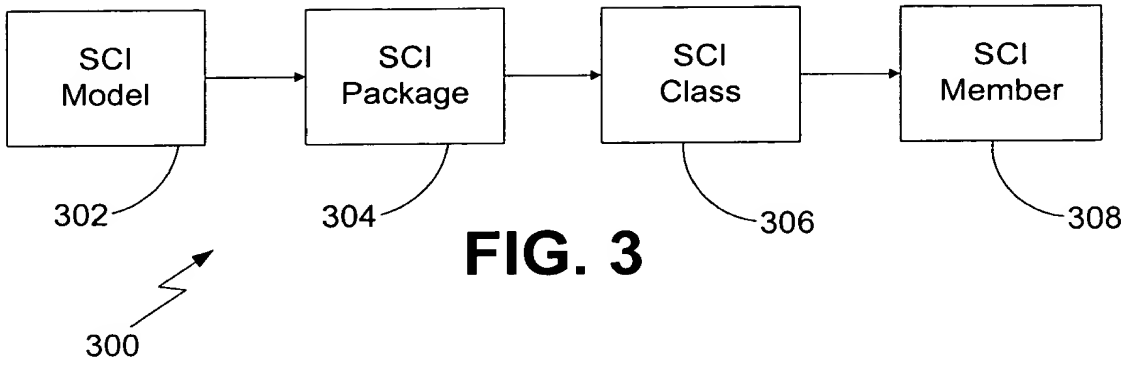


FIG. 3

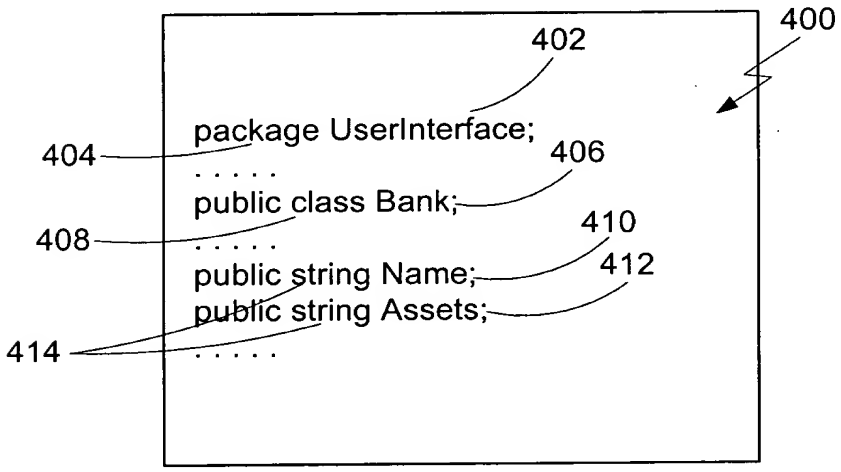


FIG. 4

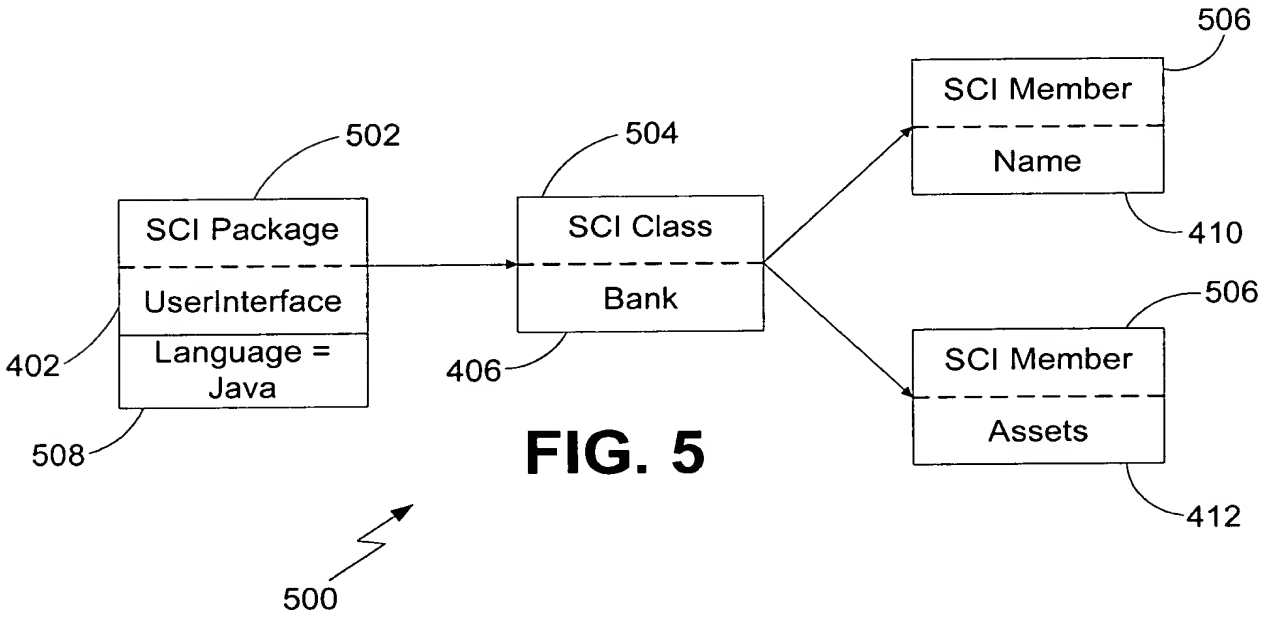


FIG. 5

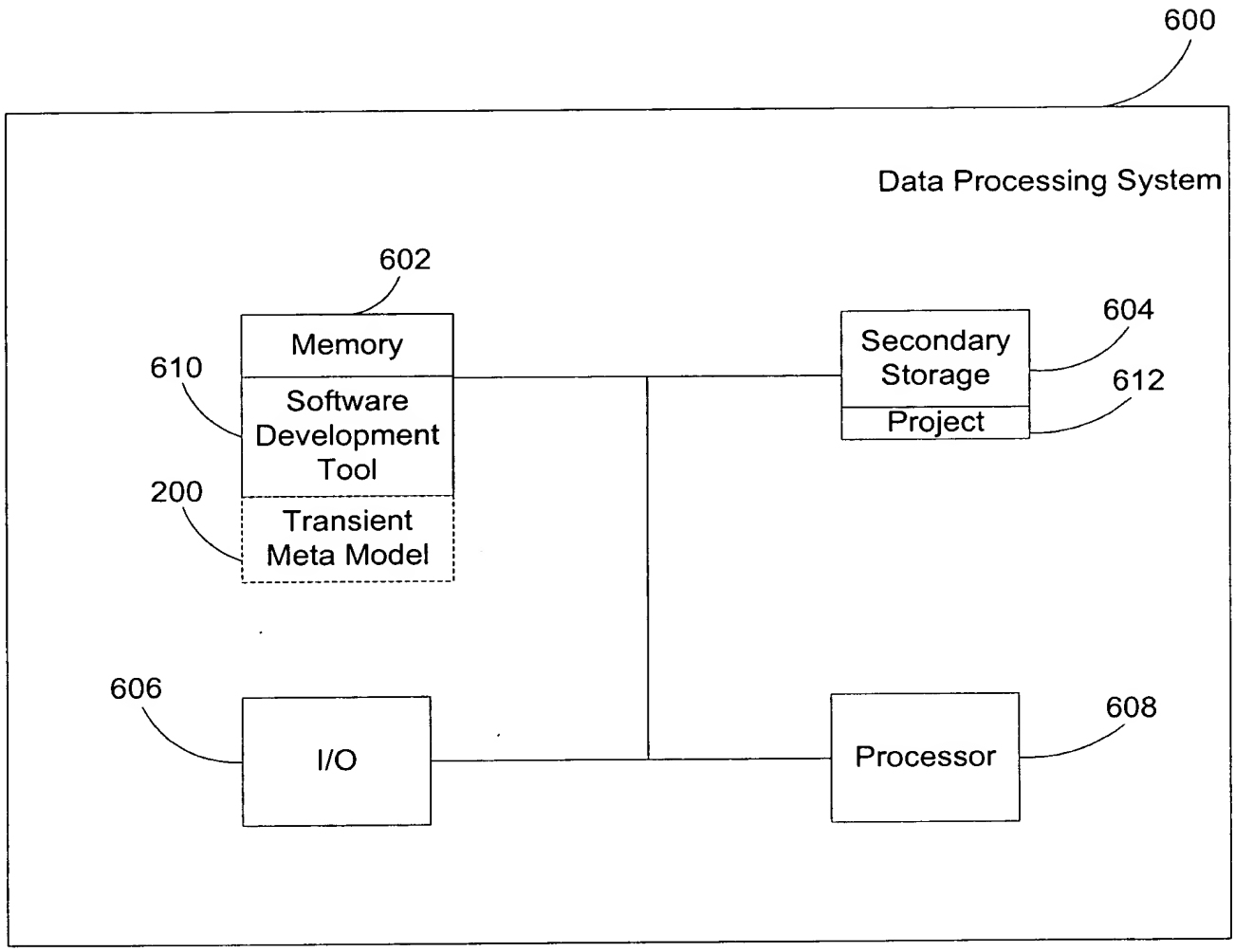

600
Data Processing System
602
Memory
610
Software Development Tool
200
Transient Meta Model
604
Secondary Storage
612
Project
606
I/O
608
Processor

FIG. 6

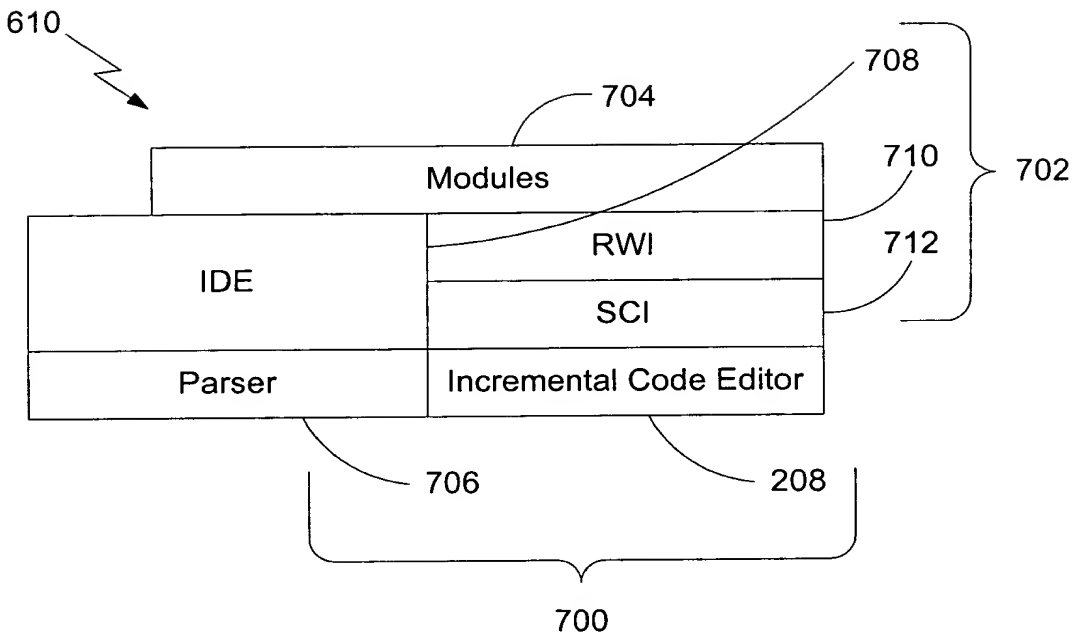

610
708
704
710
702
Modules
RWI
712
IDE
SCI
Parser
Incremental Code Editor
706
208
700

FIG. 7

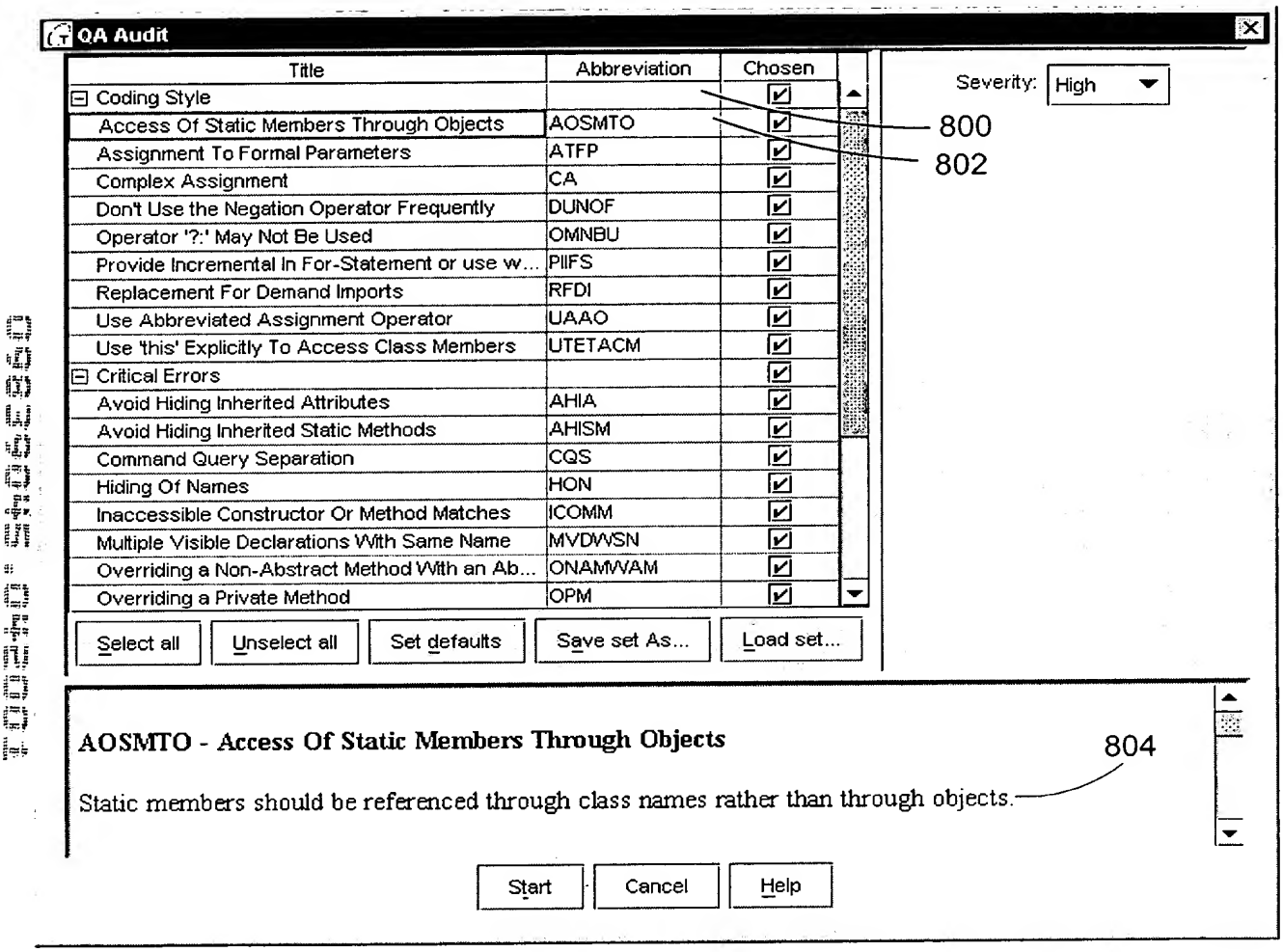

QA Audit
Title
Abbreviation
Chosen
Coding Style
Access Of Static Members Through Objects
AOSMTO
Assignment To Formal Parameters
ATFP
Complex Assignment
CA
Don't Use the Negation Operator Frequently
DUNOF
Operator '?:' May Not Be Used
OMNBU
Provide Incremental In For-Statement or use w...
PIIFS
Replacement For Demand Imports
RFDI
Use Abbreviated Assignment Operator
UAAO
Use 'this' Explicitly To Access Class Members
UTETACM
Critical Errors
Avoid Hiding Inherited Attributes
AHIA
Avoid Hiding Inherited Static Methods
AHISM
Command Query Separation
CQS
Hiding Of Names
HON
Inaccessible Constructor Or Method Matches
ICOMM
Multiple Visible Declarations With Same Name
MVDWSN
Overriding a Non-Abstract Method With an Ab...
ONAMWAM
Overriding a Private Method
OPM
Severity:
High
800
802
Select all
Unselect all
Set defaults
Save set As...
Load set...
AOSMTO - Access Of Static Members Through Objects
804
Static members should be referenced through class names rather than through objects.
Start
Cancel
Help

FIG. 8A

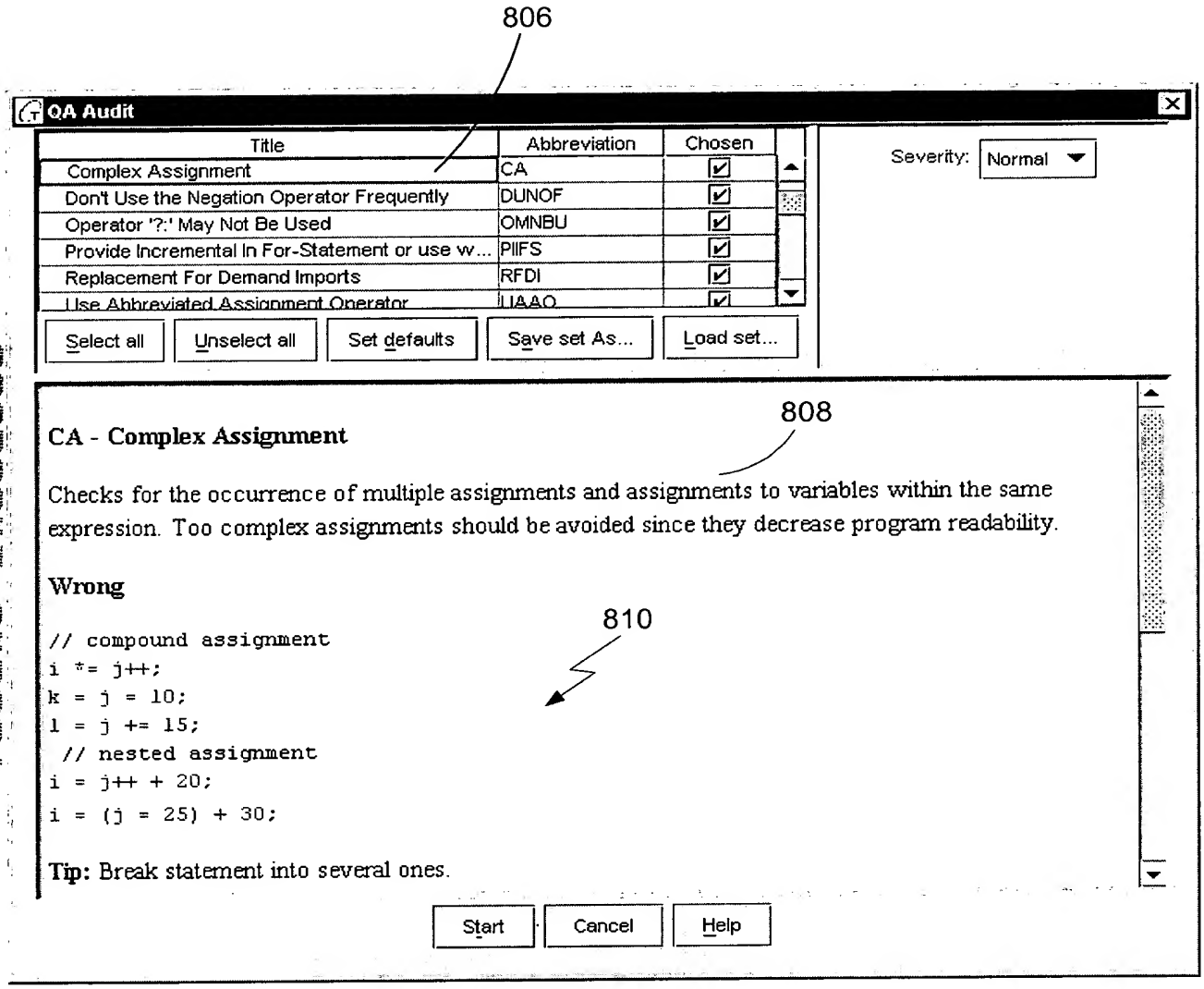

806
QA Audit
Title
Abbreviation
Chosen
Complex Assignment
CA
Don't Use the Negation Operator Frequently
DUNOF
Operator '?:' May Not Be Used
OMNBU
Provide Incremental In For-Statement or use w...
PIIFS
Replacement For Demand Imports
RFDI
Use Abbreviated Assignment Operator
UAAO
Severity:
Normal
Select all
Unselect all
Set defaults
Save set As...
Load set...
808
CA - Complex Assignment
Checks for the occurrence of multiple assignments and assignments to variables within the same expression. Too complex assignments should be avoided since they decrease program readability.
Wrong
810
// compound assignment
i *= j++;
k = j = 10;
l = j += 15;
// nested assignment
i = j++ + 20;
i = (j = 25) + 30;
Tip: Break statement into several ones.
Start
Cancel
Help

FIG. 8B

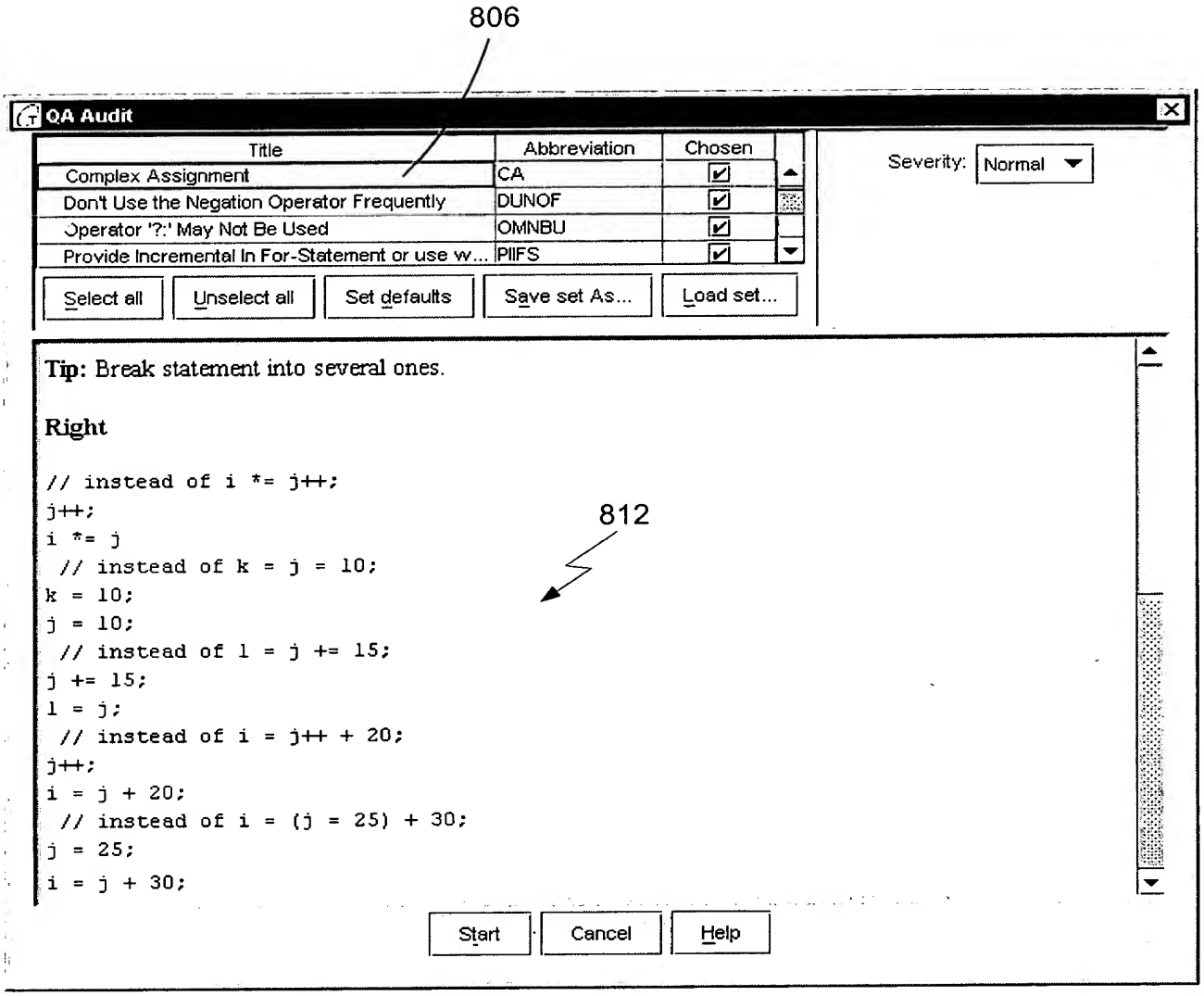

806
QA Audit
Title
Abbreviation
Chosen
Complex Assignment
CA
Don't Use the Negation Operator Frequently
DUNOF
Operator '?:' May Not Be Used
OMNBU
Provide Incremental In For-Statement or use w...
PIIFS
Severity:
Normal
Select all
Unselect all
Set defaults
Save set As...
Load set...
Tip: Break statement into several ones.
Right
// instead of i *= j++;
j++;
i *= j
// instead of k = j = 10;
k = 10;
j = 10;
// instead of l = j += 15;
j += 15;
l = j;
// instead of i = j++ + 20;
j++;
i = j + 20;
// instead of i = (j = 25) + 30;
j = 25;
i = j + 30;
812
Start
Cancel
Help

FIG. 8C

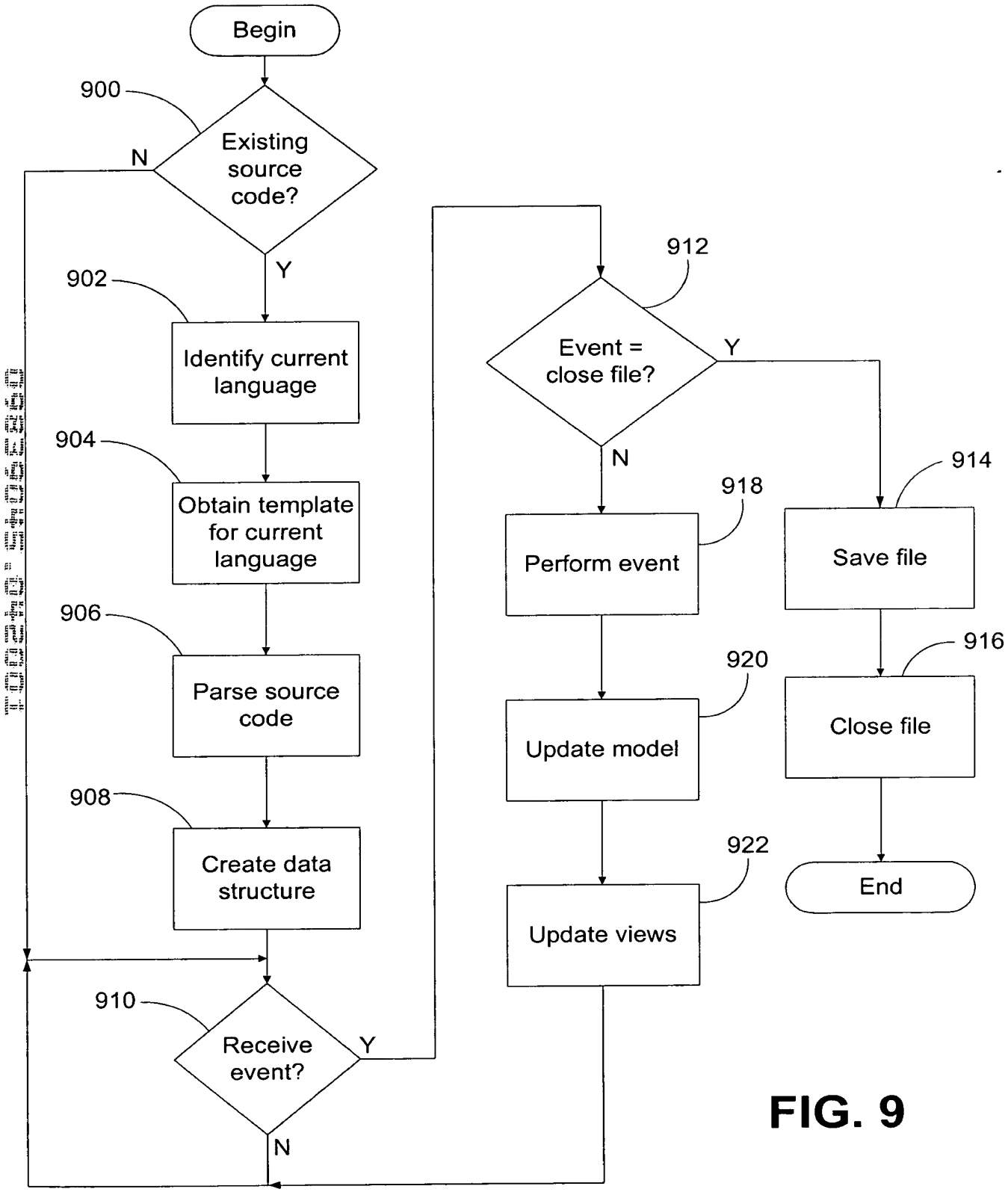

Begin
900
Existing source code?
N
Y
902
Identify current language
904
Obtain template for current language
906
Parse source code
908
Create data structure
910
Receive event?
Y
N
912
Event = close file?
Y
N
914
Save file
916
Close file
End
918
Perform event
920
Update model
922
Update views

FIG. 9

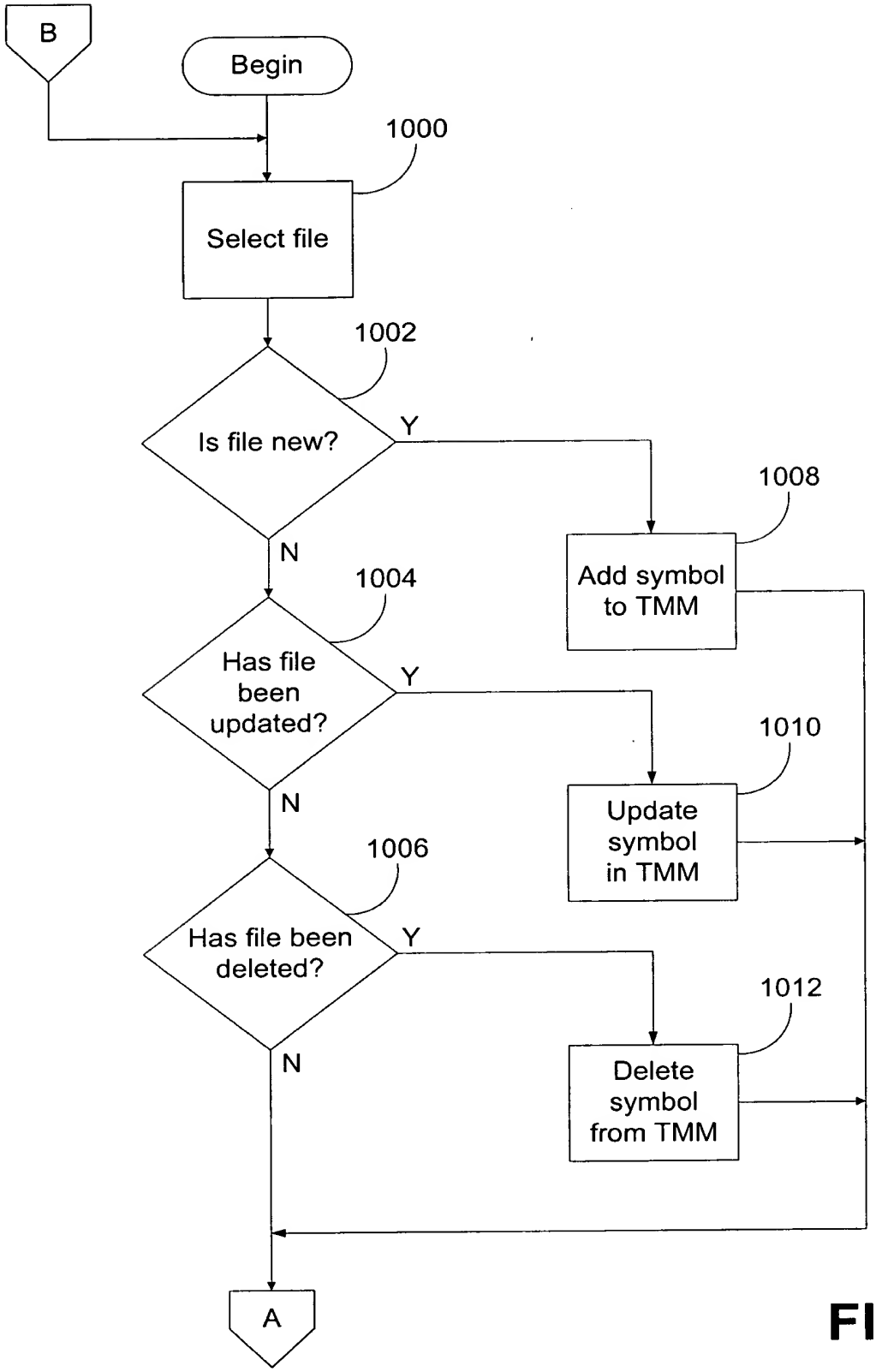

B
Begin
1000
Select file
1002
Is file new?
Y
N
1008
Add symbol to TMM
1004
Has file been updated?
Y
N
1010
Update symbol in TMM
1006
Has file been deleted?
Y
N
1012
Delete symbol from TMM
A

FIG. 10A

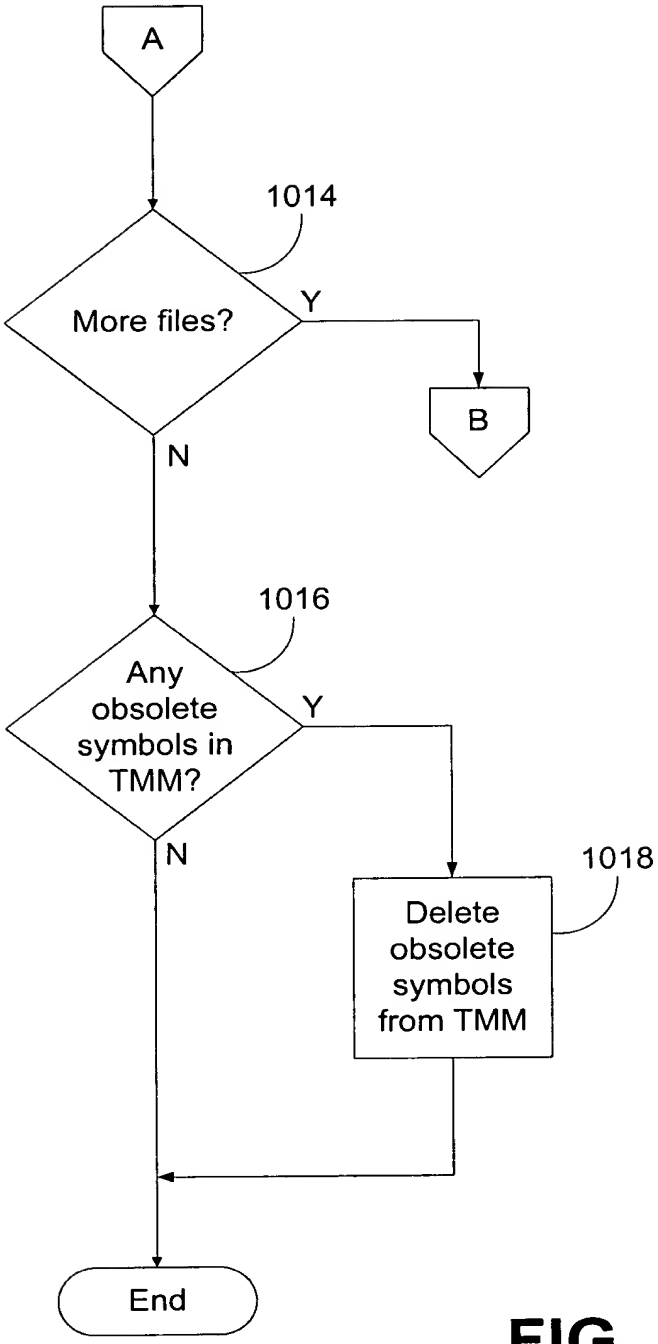

A
1014
More files?
Y
B
N
1016
Any obsolete symbols in TMM?
Y
N
1018
Delete obsolete symbols from TMM
End

FIG. 10B

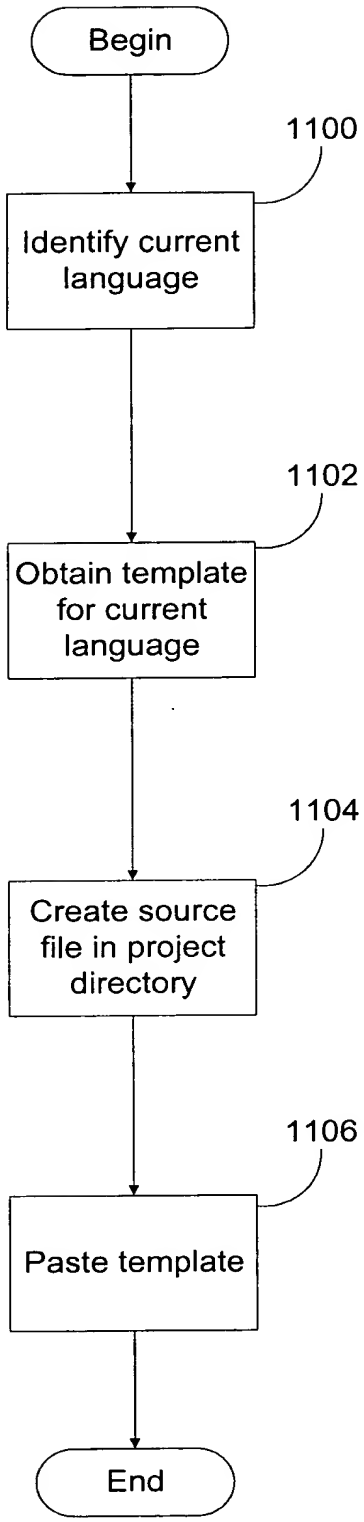

Begin
1100
Identify current language
1102
Obtain template for current language
1104
Create source file in project directory
1106
Paste template
End

FIG. 11

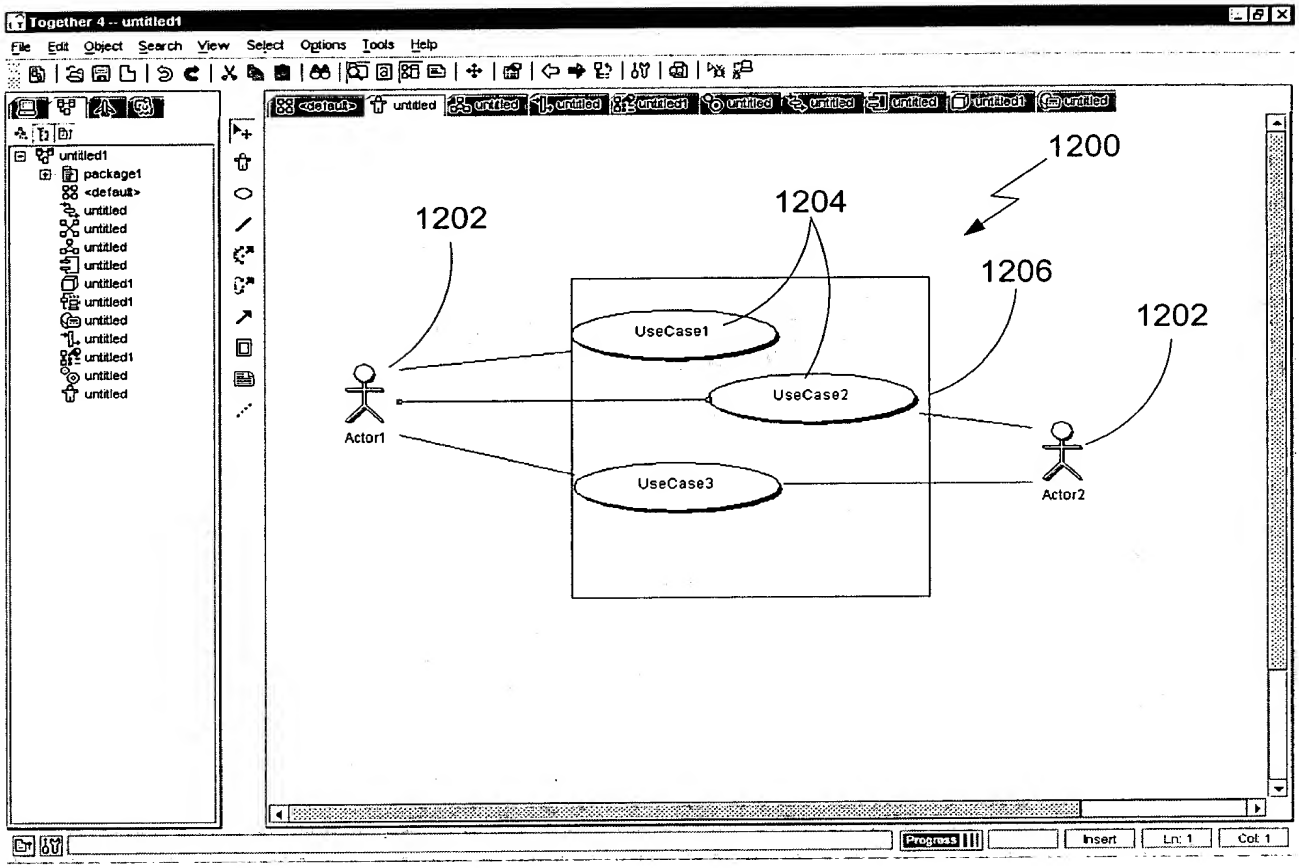

Together 4 -- untitled1
File Edit Object Search View Select Options Tools Help
untitled1
package1
<default>
untitled
untitled1
<default>
untitled
untitled
untitled
untitled
1200
1202
1204
1206
1202
UseCase1
UseCase2
UseCase3
Actor1
Actor2
Insert
Ln: 1
Col: 1

FIG. 12

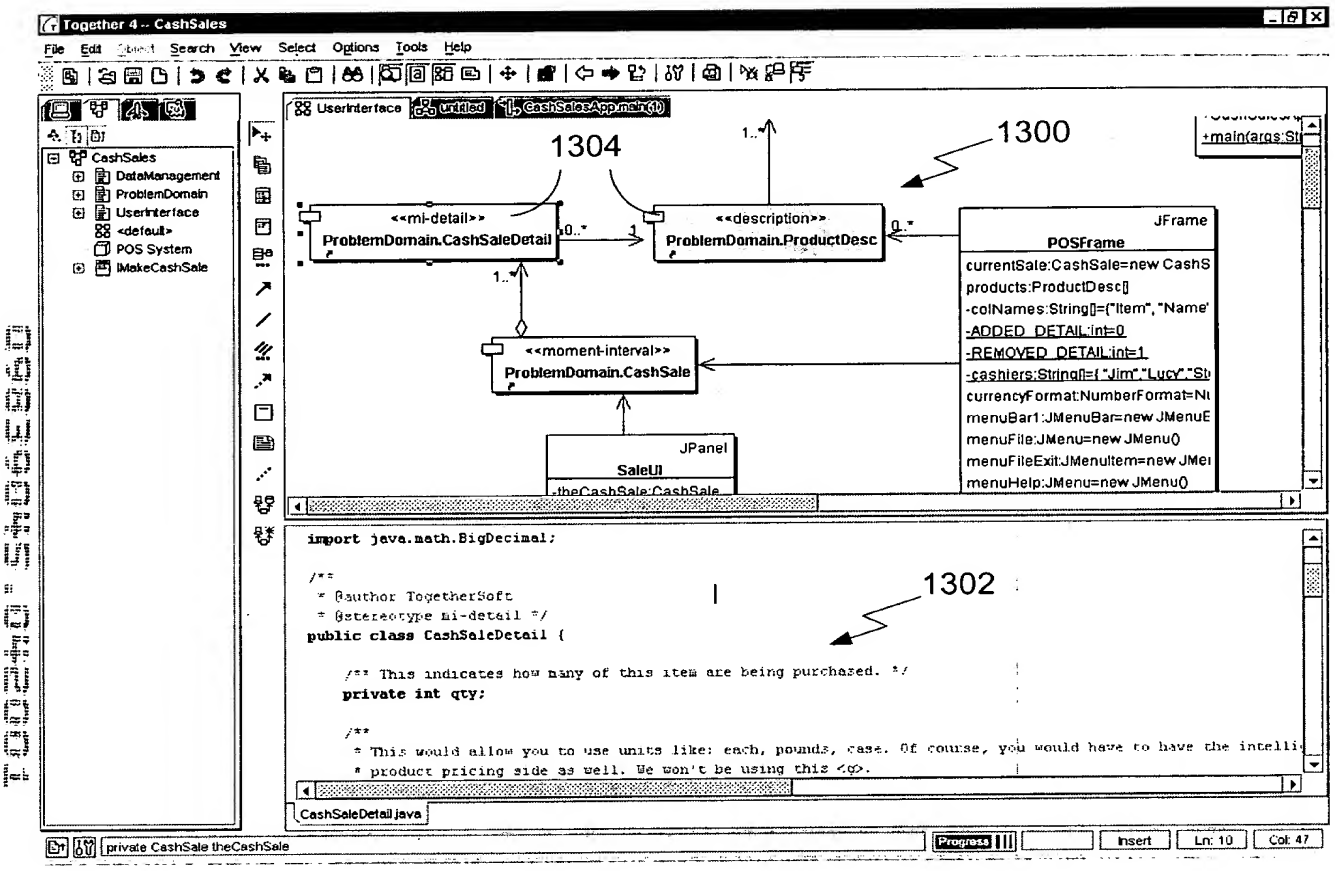

Together 4 -- CashSales
File Edit Search View Select Options Tools Help
CashSales
DataManagement
ProblemDomain
UserInterface
<default>
POS System
IMakeCashSale
UserInterface
Untitled
CashSalesApp.main(a)
1304
1300
<<mi-detail>>
ProblemDomain.CashSaleDetail
<<description>>
ProblemDomain.ProductDesc
JFrame
POSFrame
currentSale:CashSale=new CashS
products:ProductDesc[]
-colNames:String[]={"Item","Name"
-ADDED_DETAIL:int=0
-REMOVED_DETAIL:int=1
currencyFormat:NumberFormat=Nu
menuBar1:JMenuBar=new JMenuE
menuFile:JMenu=new JMenu()
menuFileExit:JMenuItem=new JMe
menuHelp:JMenu=new JMenu()
<<moment-interval>>
ProblemDomain.CashSale
JPanel
SaleUI
+main(args:St
import java.math.BigDecimal;
/**
* @author TogetherSoft
* @stereotype mi-detail */
public class CashSaleDetail {
1302
/** This indicates how many of this item are being purchased. */
private int qty;
/**
* This would allow you to use units like: each, pounds, case. Of course, you would have to have the intelli
* product pricing side as well. We won't be using this </q>.
CashSaleDetail.java
private CashSale theCashSale
Progress
Insert
Ln: 10
Col: 47

FIG. 13

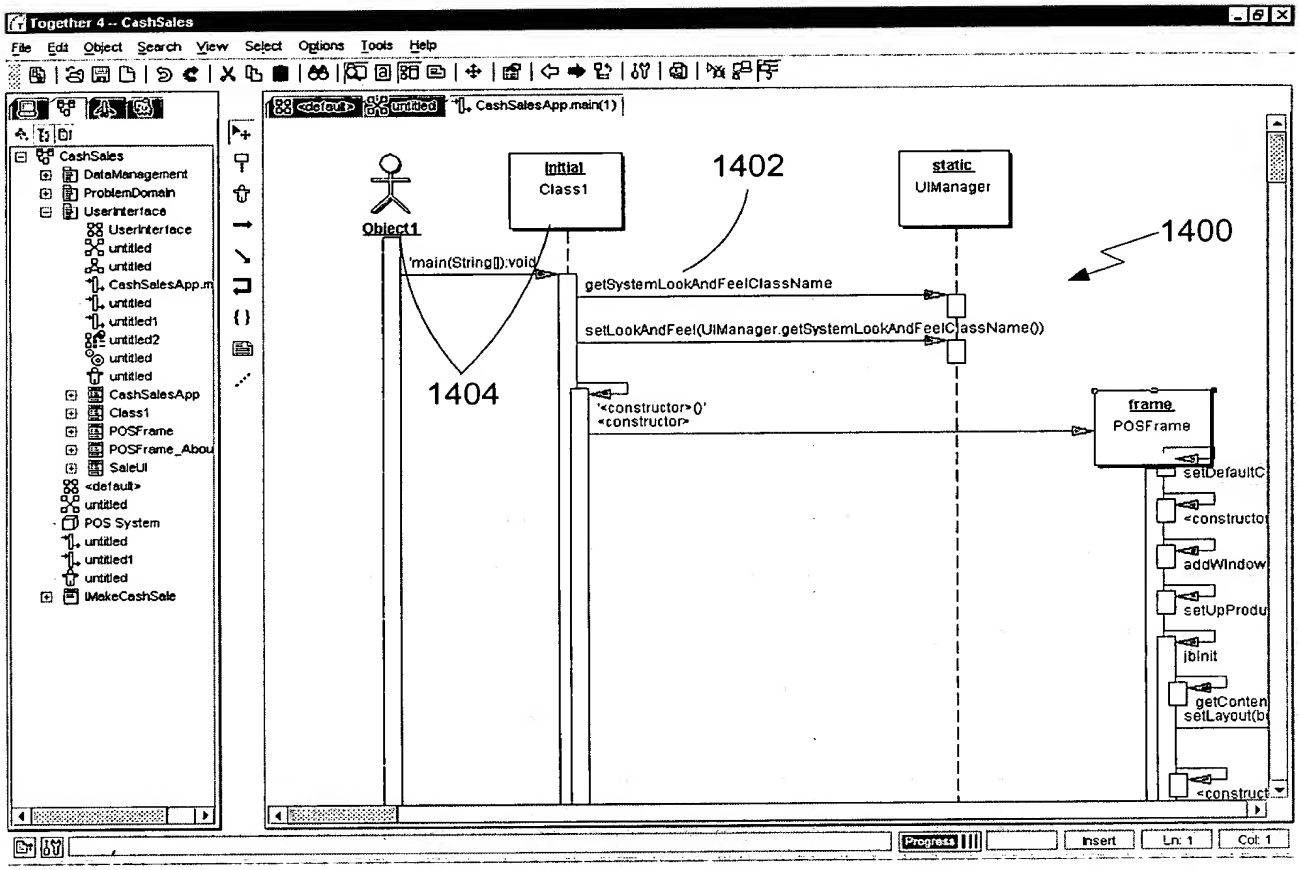

Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
CashSales
DataManagement
ProblemDomain
UserInterface
UserInterface
untitled
untitled
CashSalesApp.m
untitled
untitled1
untitled2
untitled
untitled
CashSalesApp
Class1
POSFrame
POSFrame_Abou
SaleUI
<default>
untitled
POS System
untitled
untitled1
untitled
IMakeCashSale
<default>
untitled
CashSalesApp.main(1)
Object1
initial
Class1
1402
static
UIManager
1400
'main(String[]):void
getSystemLookAndFeelClassName
setLookAndFeel(UIManager.getSystemLookAndFeelClassName())
1404
'<constructor>0'
<constructor>
frame
POSFrame
setDefaultC
<constructor
addWindow
setUpProdu
jbInit
getConten
setLayout(b
<construct
Progress
Insert
Ln: 1
Col: 1

FIG. 14

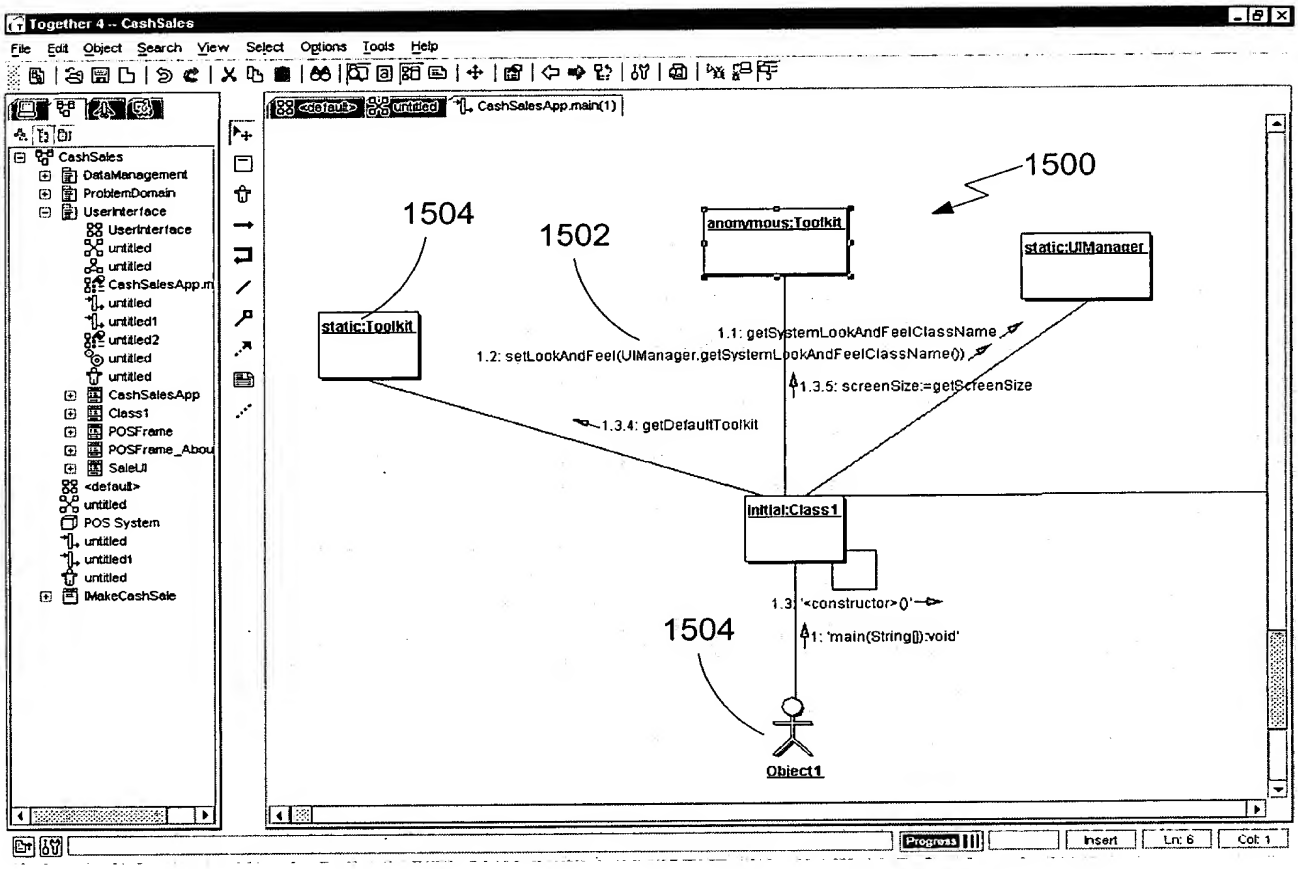

Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
CashSales
DataManagement
ProblemDomain
UserInterface
UserInterface
untitled
untitled
CashSalesApp.m
untitled
untitled1
untitled2
untitled
untitled
CashSalesApp
Class1
POSFrame
POSFrame_Abou
SaleUI
<default>
untitled
POS System
untitled
untitled1
untitled
IMakeCashSale
<default>
untitled
CashSalesApp.main(1)
1500
1504
1502
anonymous:Toolkit
static:UIManager
static:Toolkit
1.1: getSystemLookAndFeelClassName
1.2: setLookAndFeel(UIManager.getSystemLookAndFeelClassName())
1.3.5: screenSize:=getScreenSize
1.3.4: getDefaultToolkit
initial:Class1
1.3: '<constructor>()'
1: 'main(String[]):void'
1504
Object1
Progress
Insert
Ln: 6
Col: 1

FIG. 15

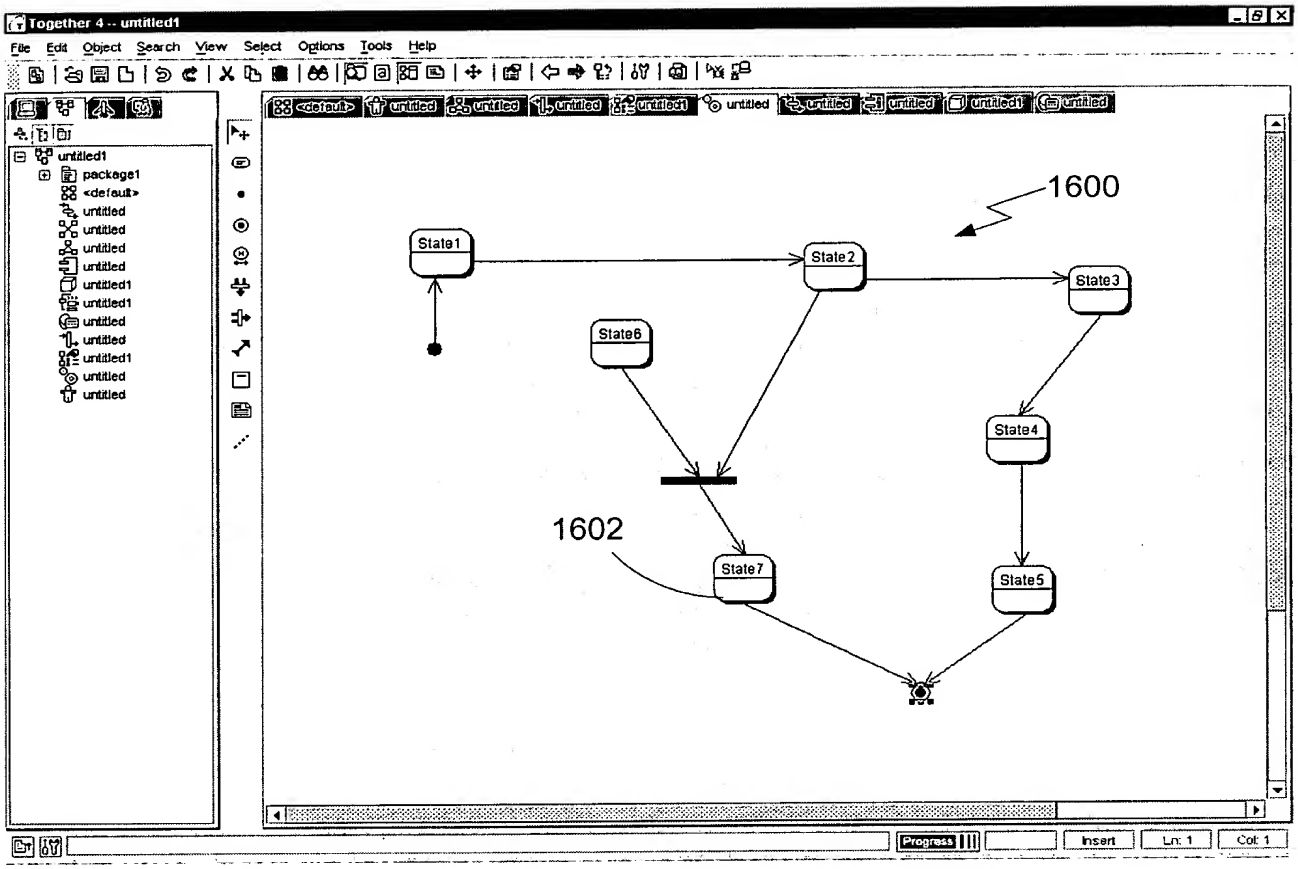

Together 4 -- untitled1
File Edit Object Search View Select Options Tools Help
untitled1
package1
<default>
untitled
untitled1
1600
State1
State2
State3
State4
State5
State6
State7
1602
Progress
Insert
Ln: 1
Col: 1

FIG. 16

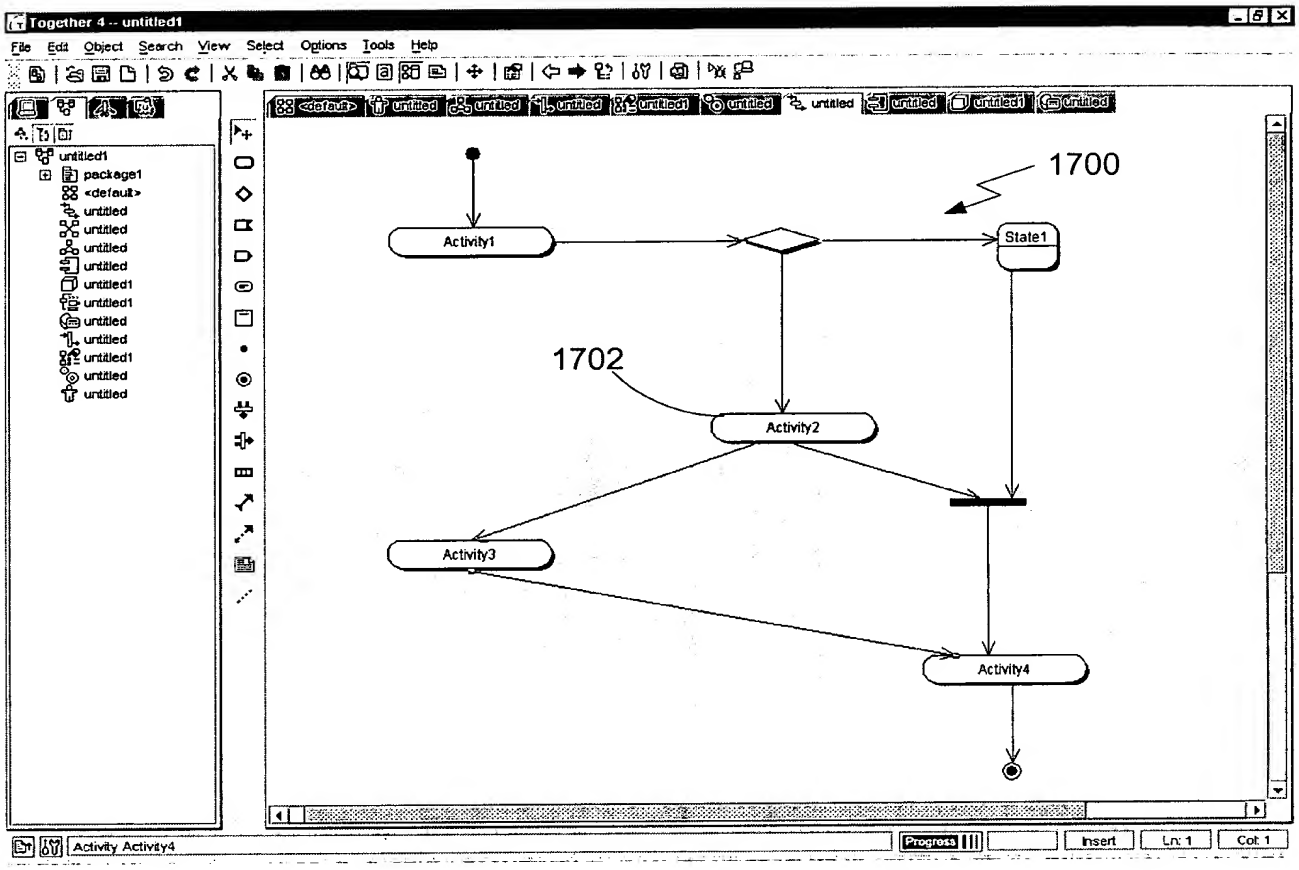

Together 4 -- untitled1
File Edit Object Search View Select Options Tools Help
untitled1
package1
<default>
1700
Activity1
State1
1702
Activity2
Activity3
Activity4
Activity Activity4
Progress
Insert
Ln: 1
Col: 1

FIG. 17

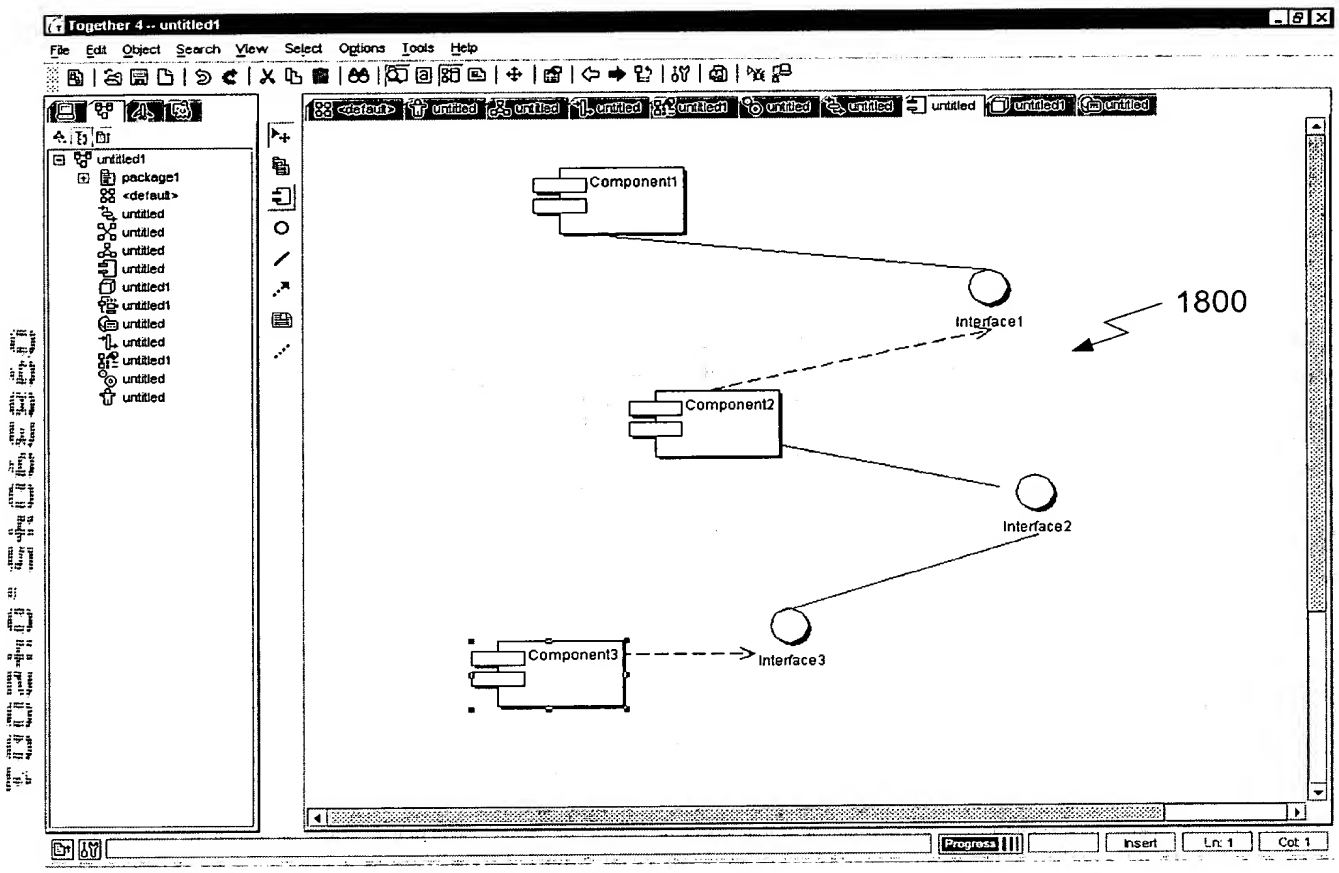

Together 4 -- untitled1
File Edit Object Search View Select Options Tools Help
untitled1
package1
<default>
Component1
Interface1
1800
Component2
Interface2
Component3
Interface3
Progress
Insert
Ln: 1
Col: 1

FIG. 18

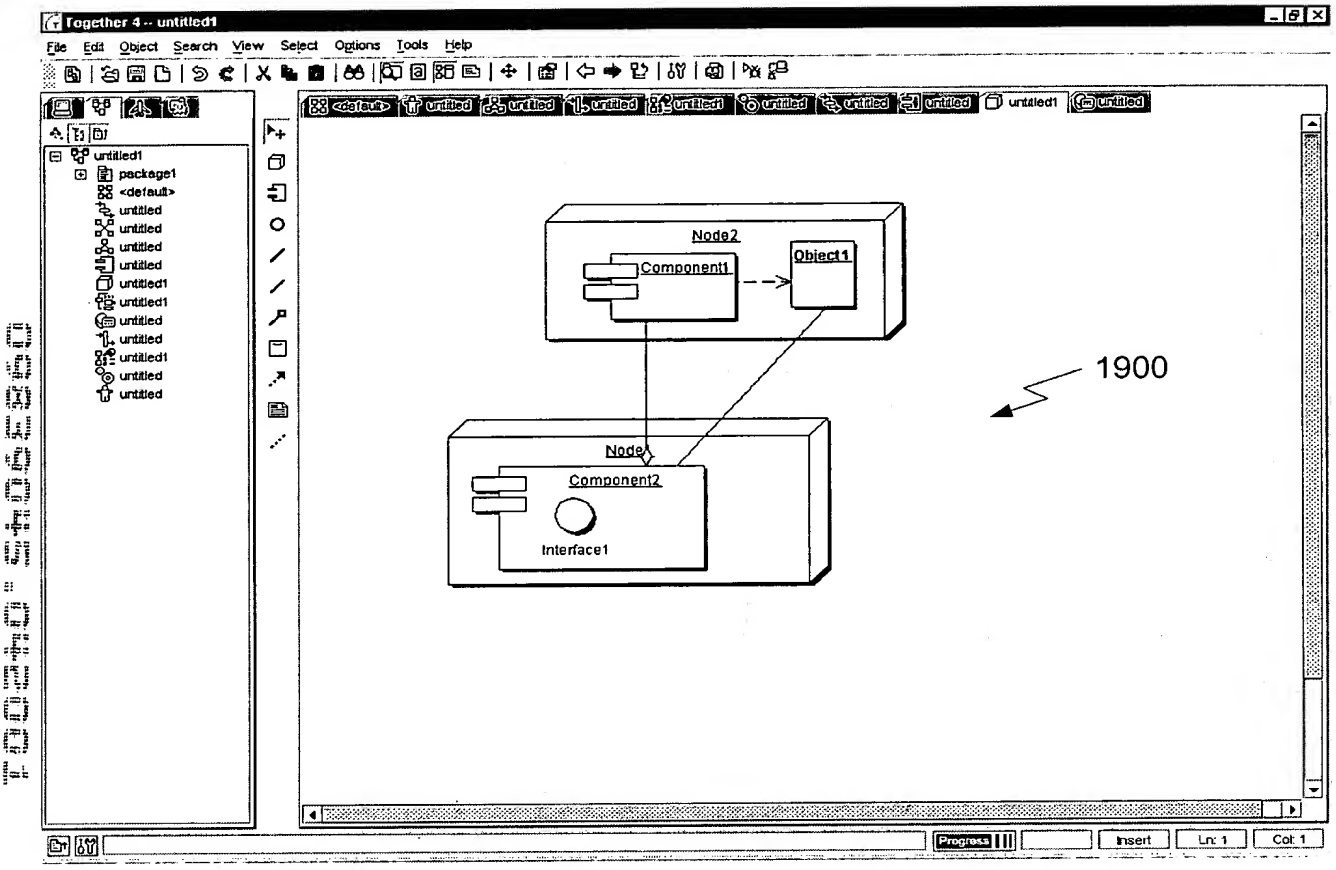

Together 4 -- untitled1
File Edit Object Search View Select Options Tools Help
untitled1
package1
<default>
untitled
untitled
untitled
untitled
untitled1
untitled1
untitled
untitled
untitled1
untitled
untitled
Node2
Component1
Object1
Node1
Component2
Interface1
1900
Progress
Insert
Ln: 1
Col: 1

FIG. 19

FIG. 20

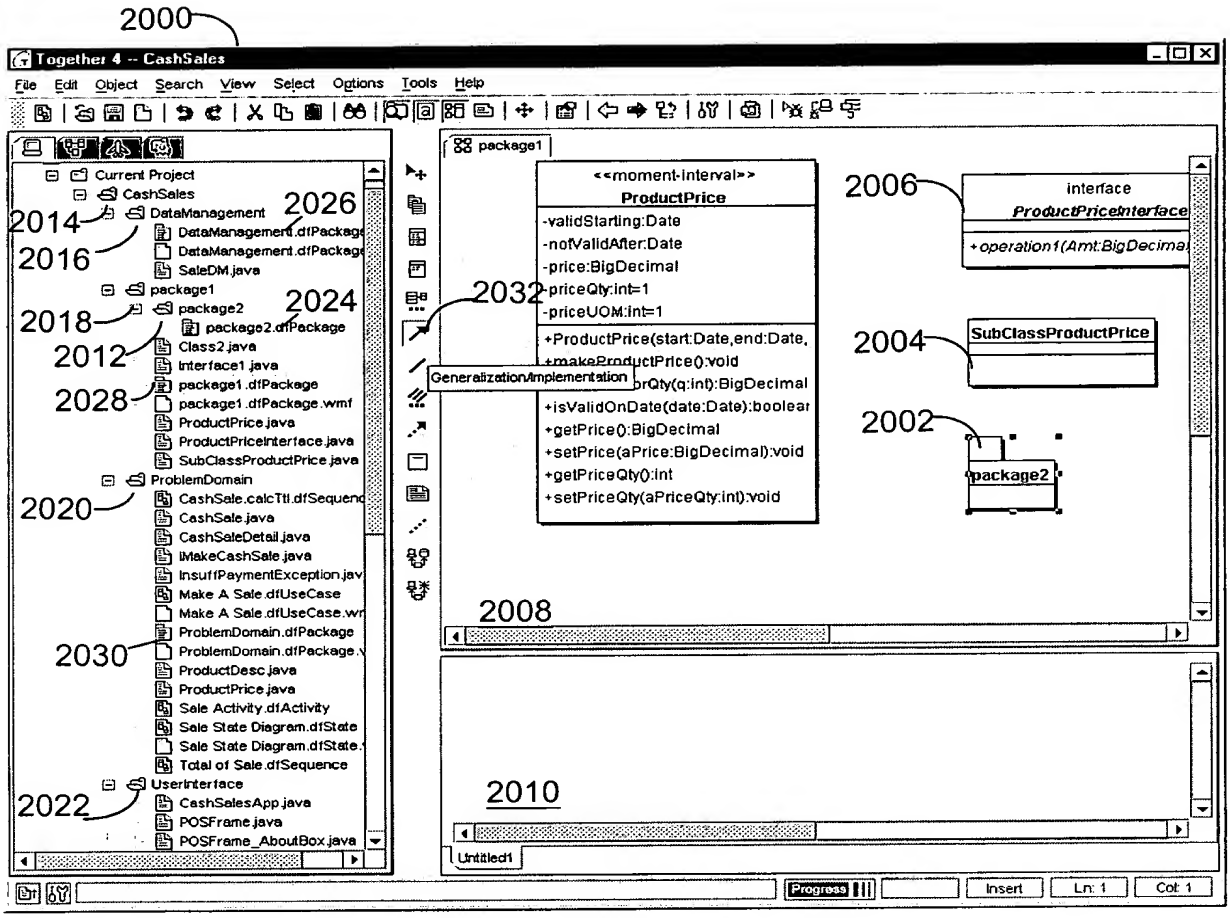

2000
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
Current Project
CashSales
DataManagement
DataManagement.dfPackage
DataManagement.dfPackage
SaleDM.java
package1
package2
package2.dfPackage
Class2.java
Interface1.java
package1.dfPackage
package1.dfPackage.wmf
ProductPrice.java
ProductPriceInterface.java
SubClassProductPrice.java
ProblemDomain
CashSale.calcTtl.dfSequenc
CashSale.java
CashSaleDetail.java
IMakeCashSale.java
InsuffPaymentException.jav
Make A Sale.dfUseCase
Make A Sale.dfUseCase.wr
ProblemDomain.dfPackage
ProblemDomain.dfPackage.
ProductDesc.java
ProductPrice.java
Sale Activity.dfActivity
Sale State Diagram.dfState
Sale State Diagram.dfState.
Total of Sale.dfSequence
UserInterface
CashSalesApp.java
POSFrame.java
POSFrame_AboutBox.java
2014
2026
2016
2018
2024
2012
2028
2020
2030
2022
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
2032
Generalization/Implementation
2006
interface
ProductPriceInterface
+operation1(Amt:BigDecima
2004
SubClassProductPrice
2002
package2
2008
2010
Untitled1
Progress
Insert
Ln: 1
Col: 1

FIG. 21

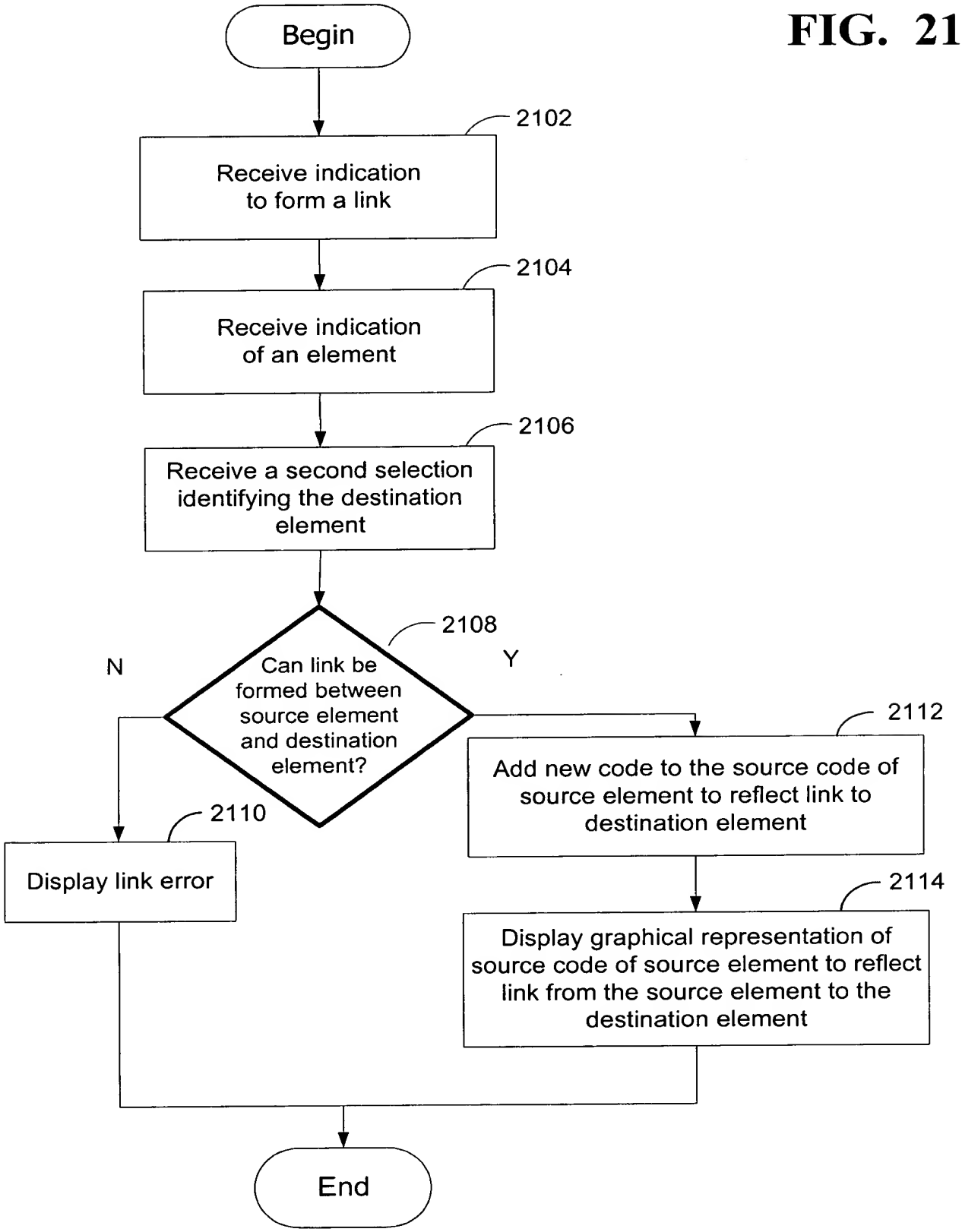

Begin
2102
Receive indication to form a link
2104
Receive indication of an element
2106
Receive a second selection identifying the destination element
2108
Can link be formed between source element and destination element?
N
Y
2110
Display link error
2112
Add new code to the source code of source element to reflect link to destination element
2114
Display graphical representation of source code of source element to reflect link from the source element to the destination element
End

FIG. 22

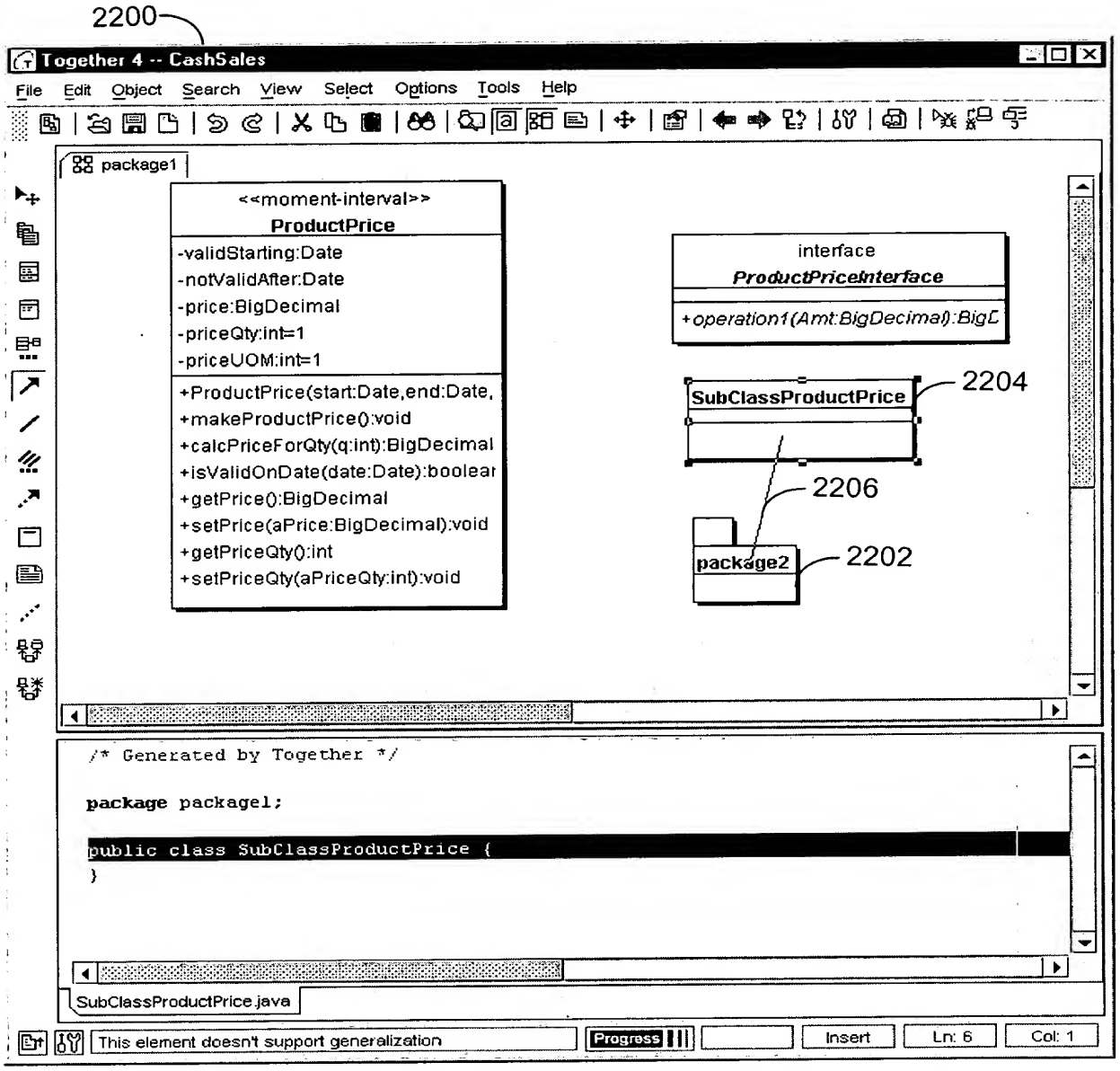

2200
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
SubClassProductPrice
2204
2206
package2
2202
/* Generated by Together */
package package1;
public class SubClassProductPrice {
}
SubClassProductPrice.java
This element doesn't support generalization
Progress
Insert
Ln: 6
Col: 1

FIG. 23

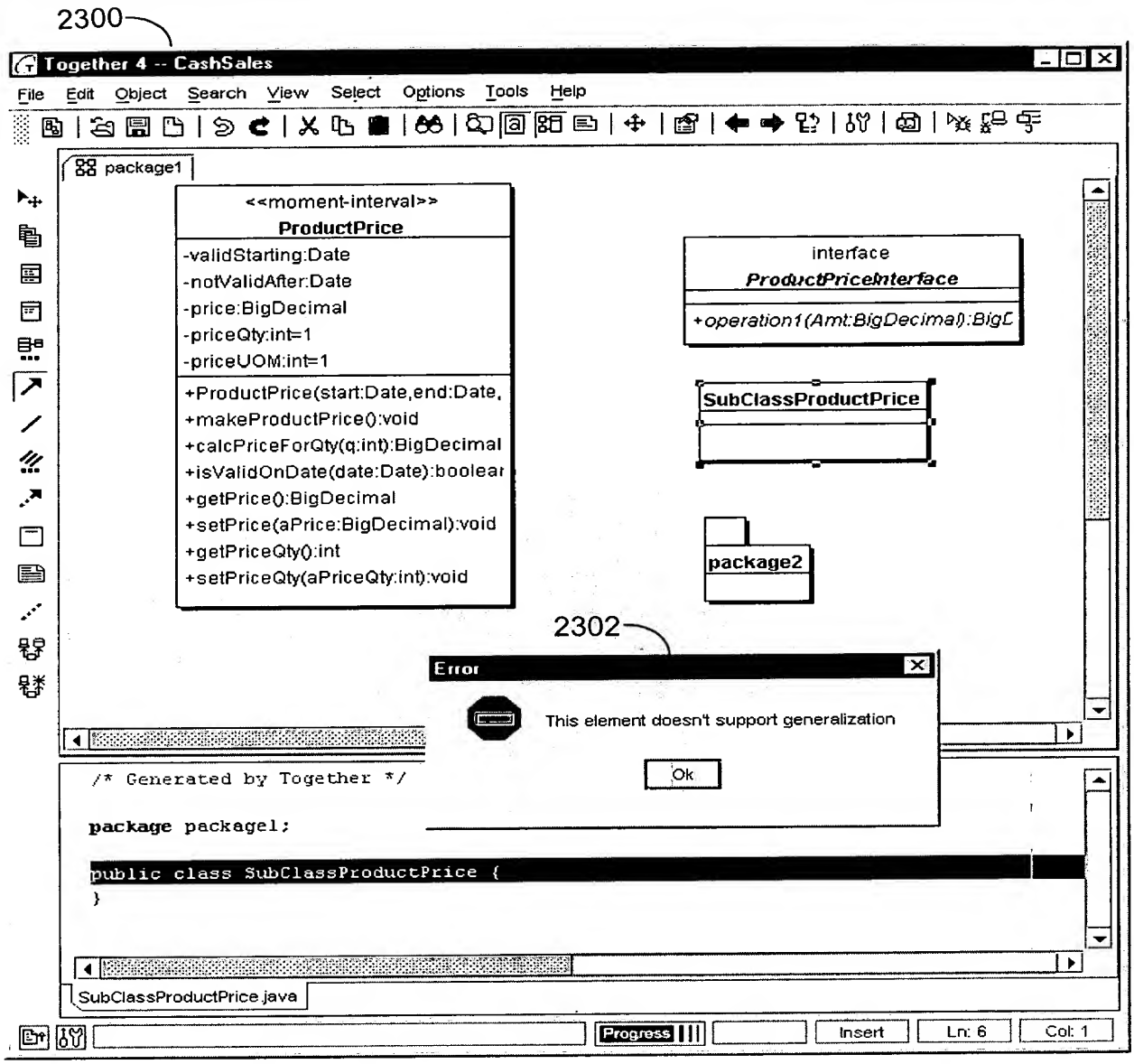

2300
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
SubClassProductPrice
package2
2302
Error
This element doesn't support generalization
Ok
/* Generated by Together */
package package1;
public class SubClassProductPrice {
}
SubClassProductPrice.java
Progress
Insert
Ln: 6
Col: 1

FIG. 24

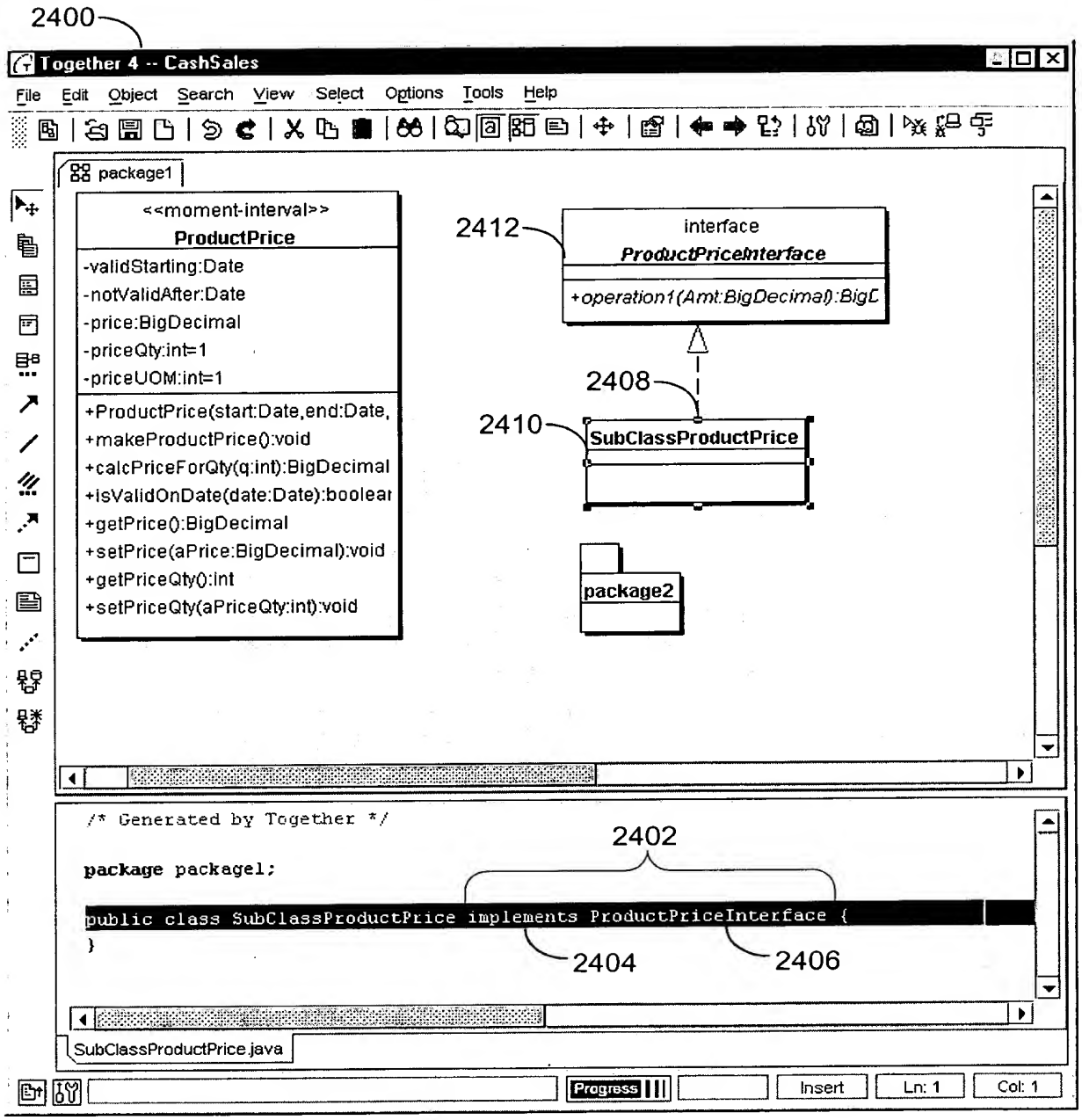

2400
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
2412
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
2408
2410
SubClassProductPrice
package2
/* Generated by Together */
2402
package package1;
public class SubClassProductPrice implements ProductPriceInterface {
}
2404
2406
SubClassProductPrice.java
Progress
Insert
Ln: 1
Col: 1

FIG. 25

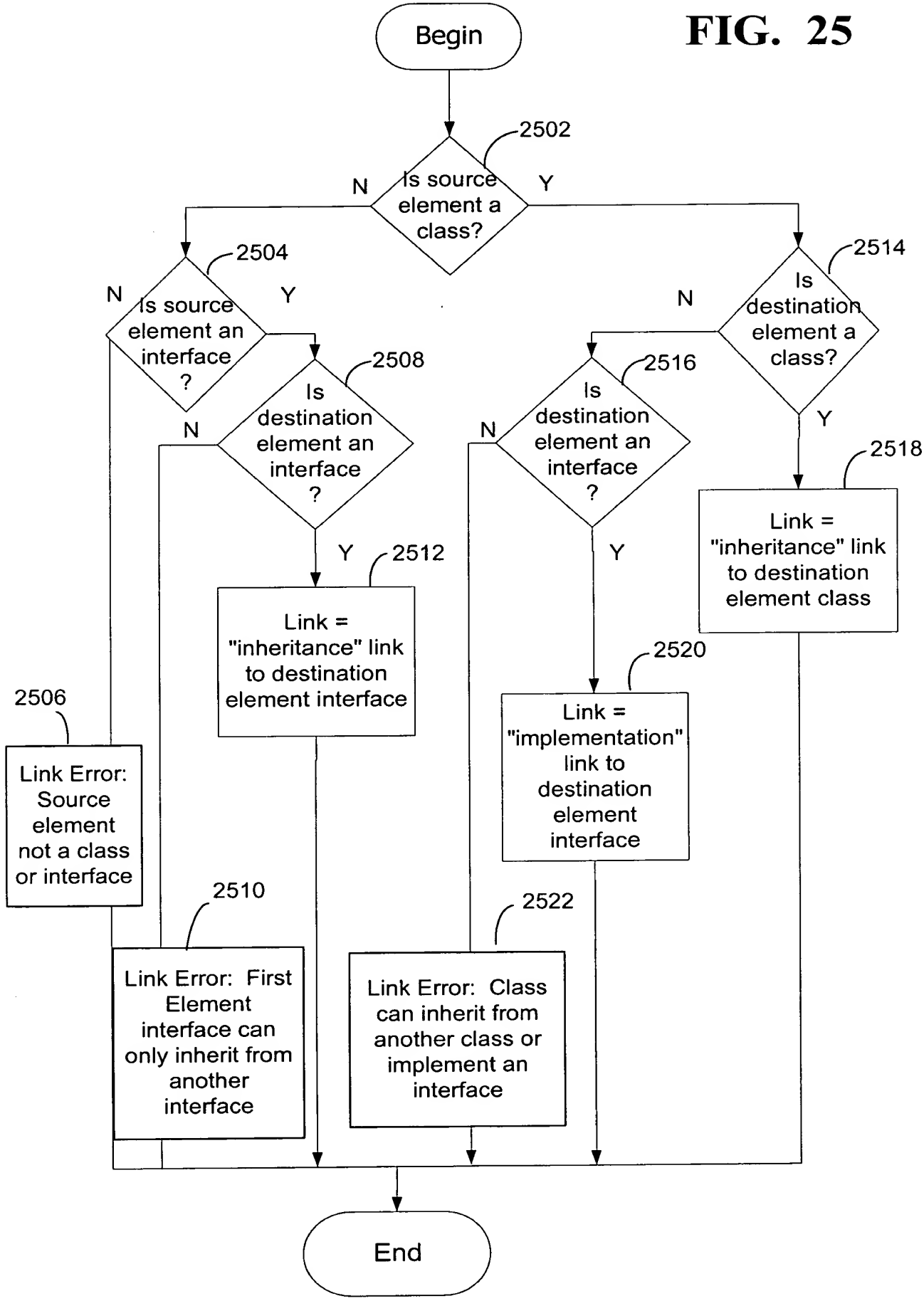

Begin
2502
Is source element a class?
N
Y
2504
Is source element an interface ?
N
Y
2508
Is destination element an interface ?
N
Y
2512
Link = "inheritance" link to destination element interface
2506
Link Error: Source element not a class or interface
2510
Link Error: First Element interface can only inherit from another interface
2514
Is destination element a class?
N
Y
2516
Is destination element an interface ?
N
Y
2518
Link = "inheritance" link to destination element class
2520
Link = "implementation" link to destination element interface
2522
Link Error: Class can inherit from another class or implement an interface
End

FIG. 26

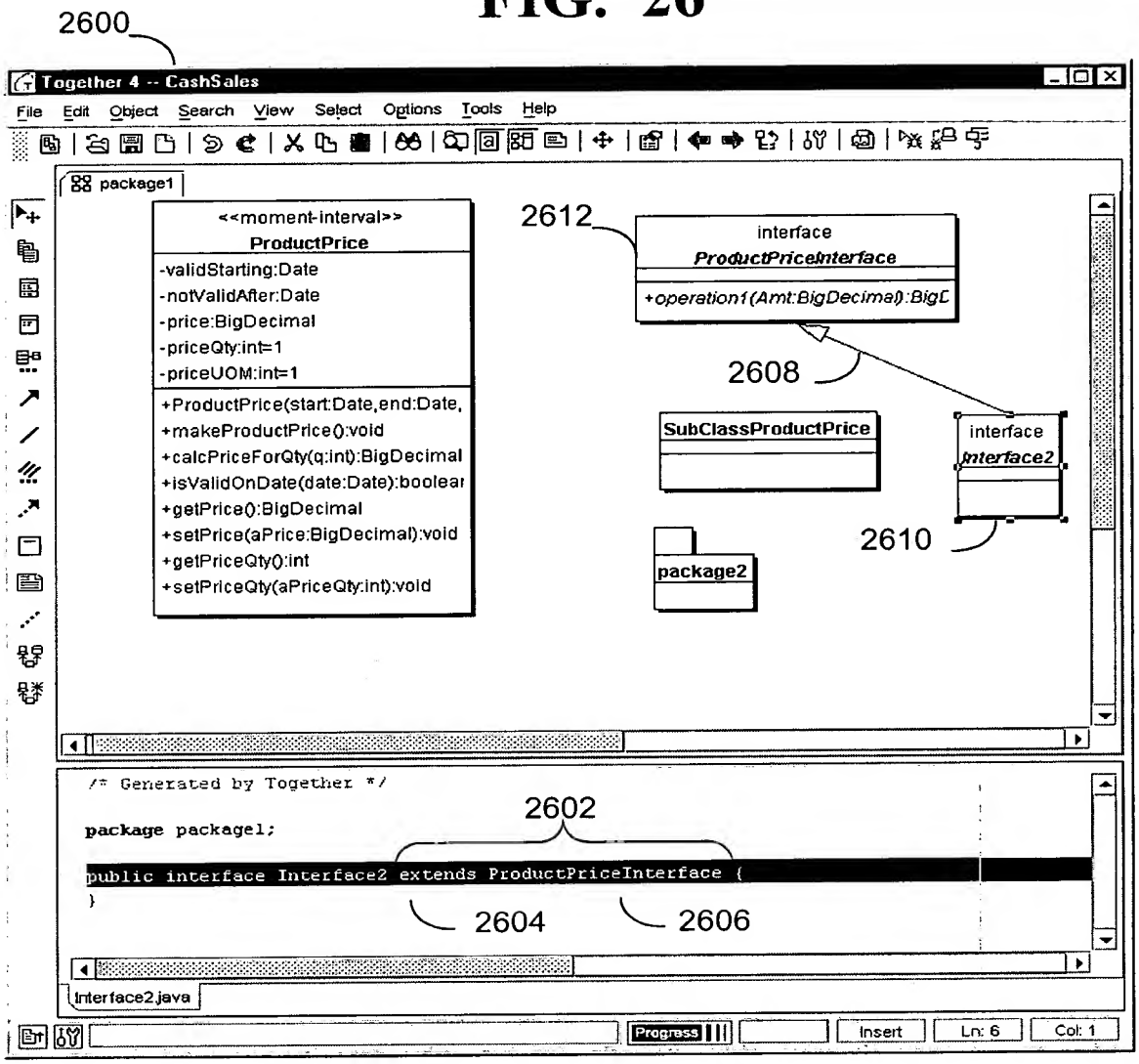

2600
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
2612
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
2608
SubClassProductPrice
interface
Interface2
2610
package2
/* Generated by Together */
2602
package package1;
public interface Interface2 extends ProductPriceInterface {
}
2604
2606
Interface2.java
Progress
Insert
Ln: 6
Col: 1

FIG. 27

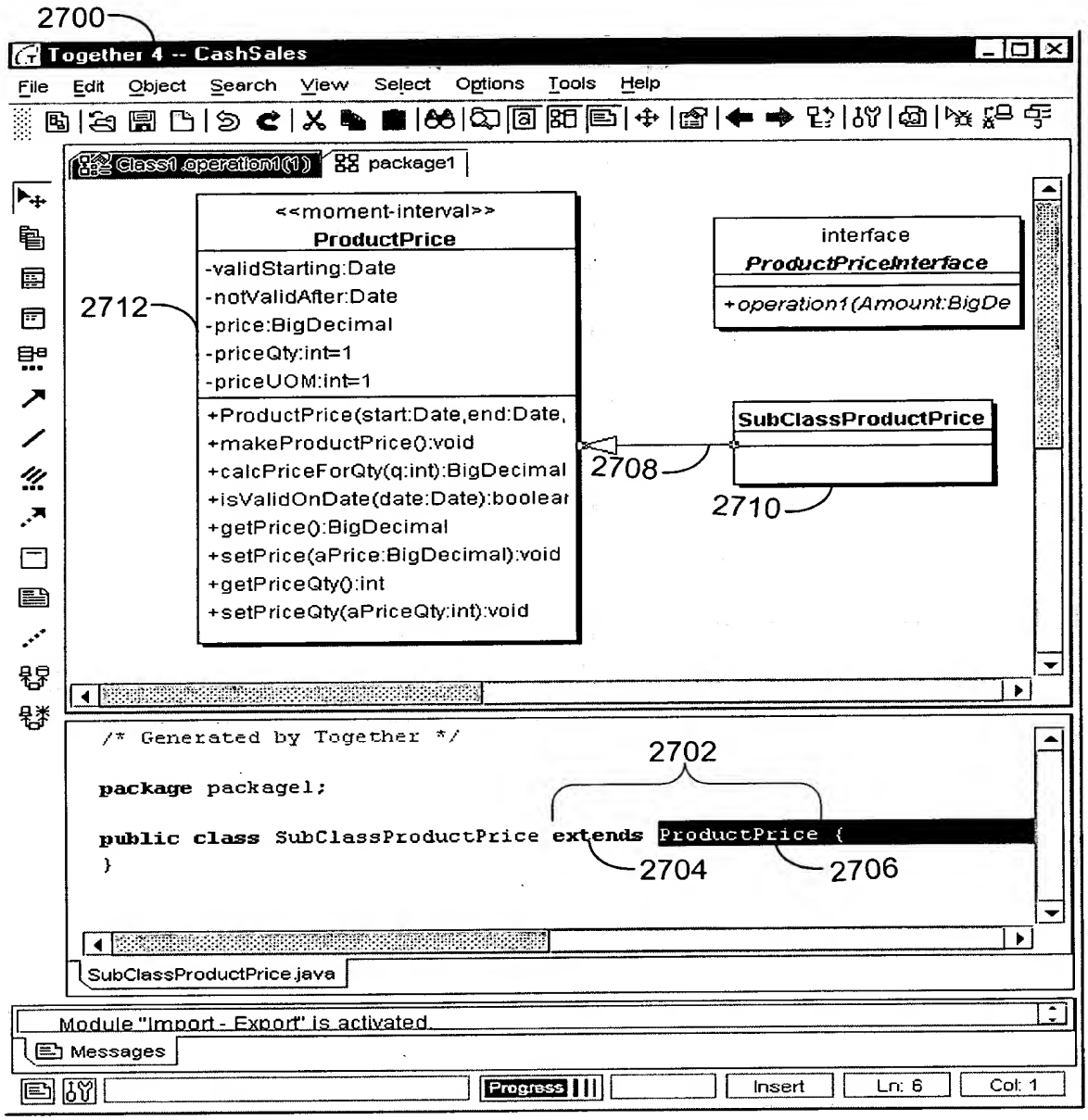

2700
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
Class1.operation1(1)
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
2712
interface
ProductPriceInterface
+operation1(Amount:BigDe
SubClassProductPrice
2708
2710
/* Generated by Together */
package package1;
public class SubClassProductPrice extends ProductPrice {
}
2702
2704
2706
SubClassProductPrice.java
Module "Import - Export" is activated.
Messages
Progress
Insert
Ln: 6
Col: 1

FIG. 28

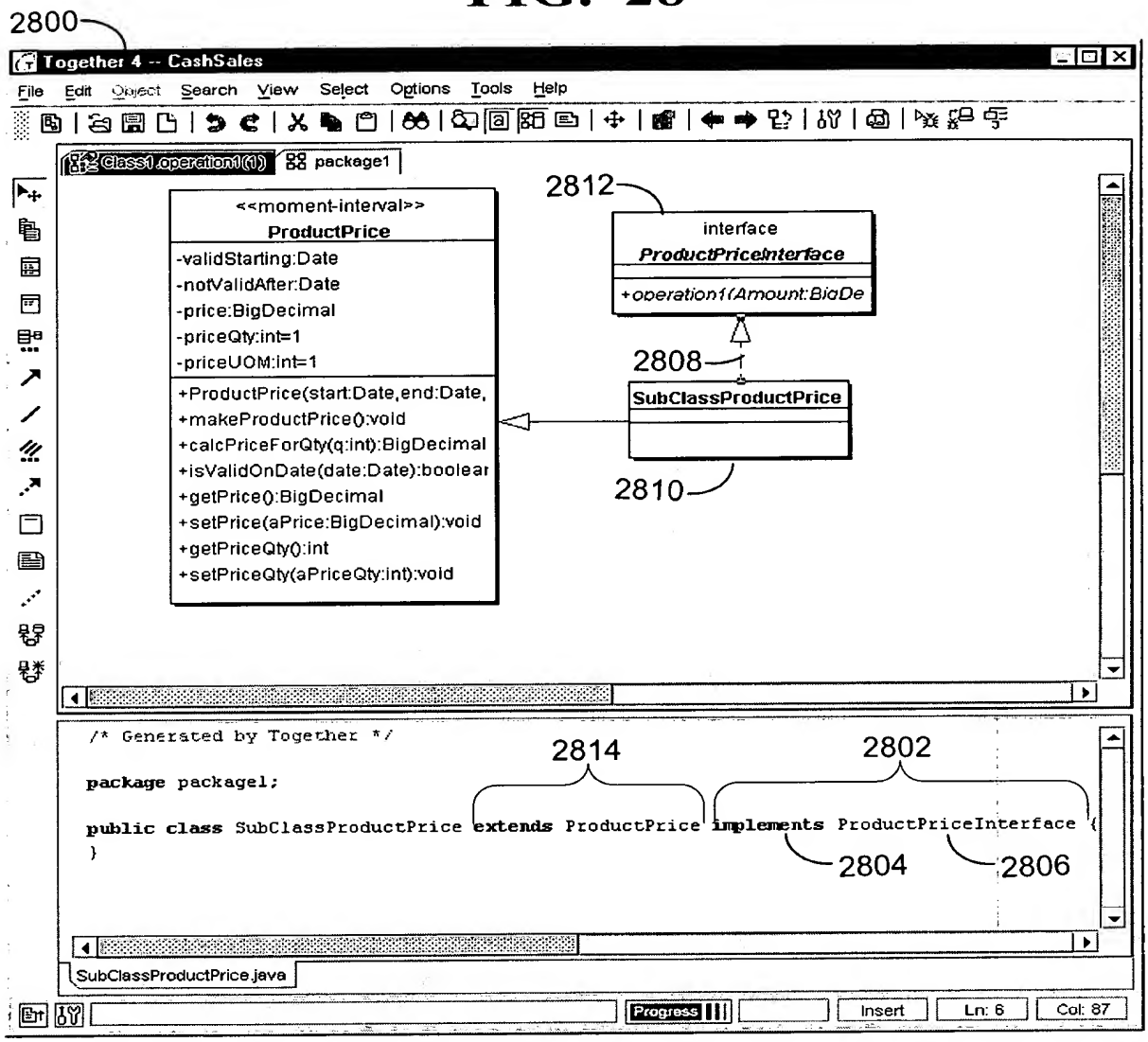

2800
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
Class1.operation1(1)
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
2812
interface
ProductPriceInterface
+operation1(Amount:BigDe
2808
SubClassProductPrice
2810
/* Generated by Together */
package package1;
public class SubClassProductPrice extends ProductPrice implements ProductPriceInterface {
}
2814
2802
2804
2806
SubClassProductPrice.java
Progress
Insert
Ln: 6
Col: 87

FIG. 29

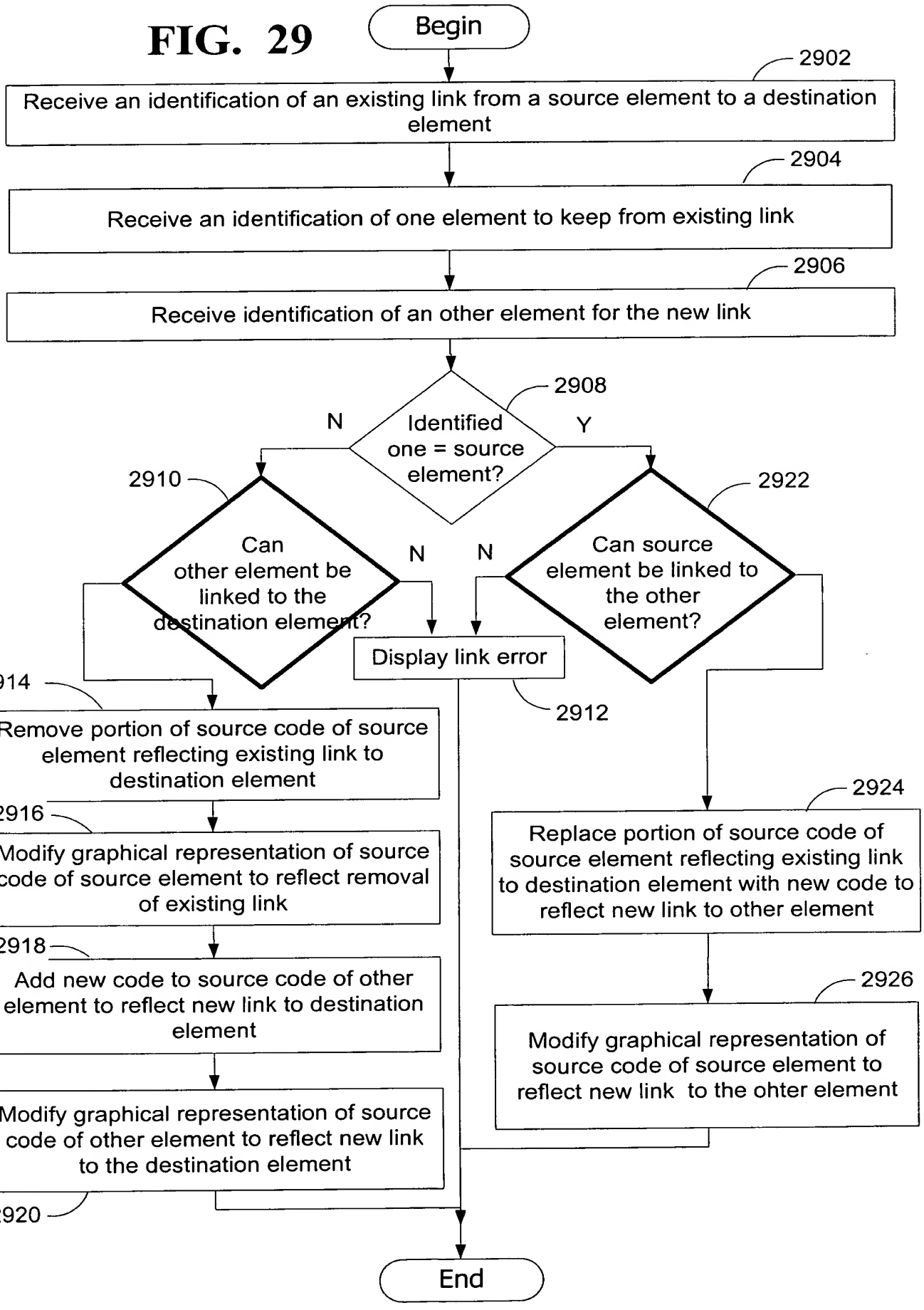

Begin
2902
Receive an identification of an existing link from a source element to a destination element
2904
Receive an identification of one element to keep from existing link
2906
Receive identification of an other element for the new link
2908
Identified one = source element?
N
Y
2910
Can other element be linked to the destination element?
N
N
2922
Can source element be linked to the other element?
Display link error
2912
2914
Remove portion of source code of source element reflecting existing link to destination element
2916
Modify graphical representation of source code of source element to reflect removal of existing link
2918
Add new code to source code of other element to reflect new link to destination element
Modify graphical representation of source code of other element to reflect new link to the destination element
2920
2924
Replace portion of source code of source element reflecting existing link to destination element with new code to reflect new link to other element
2926
Modify graphical representation of source code of source element to reflect new link to the ohter element
End

FIG. 30

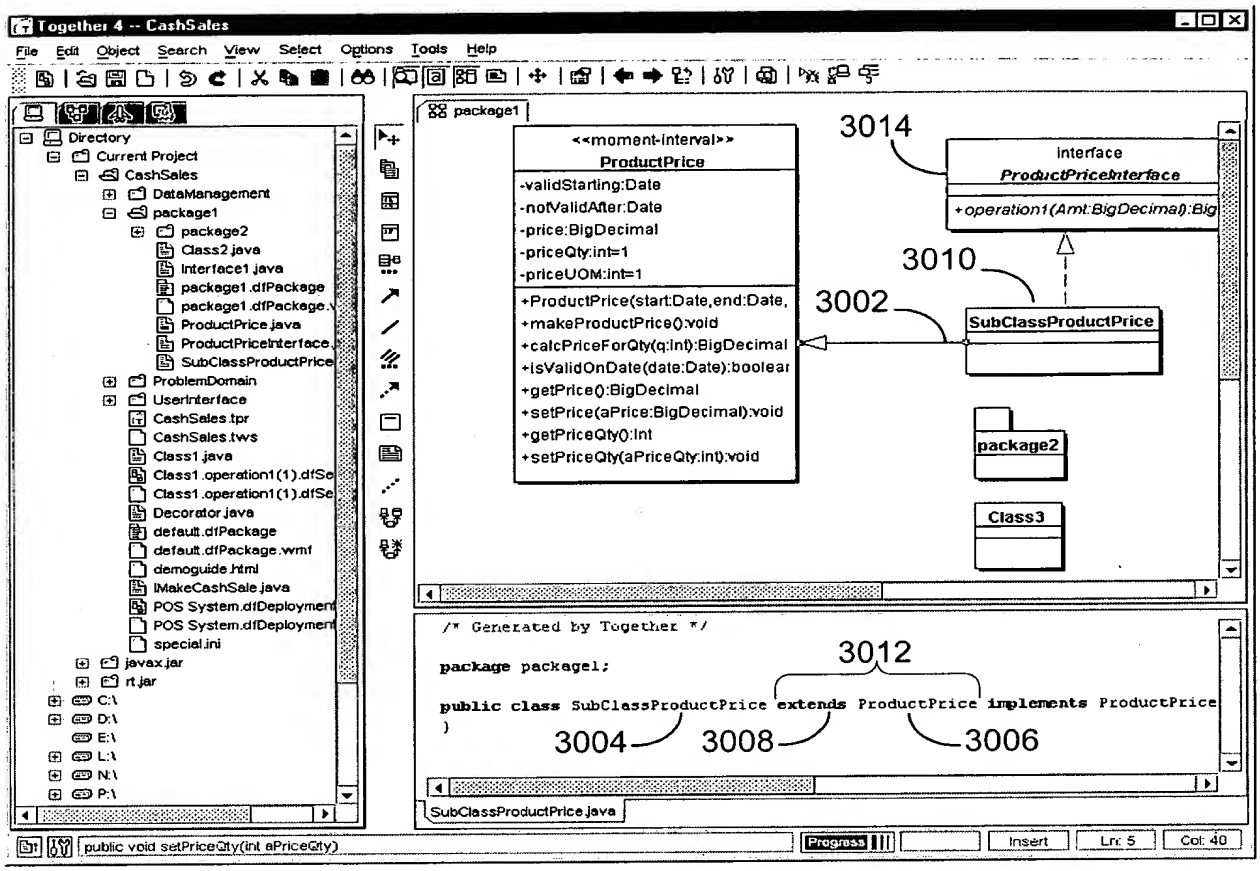
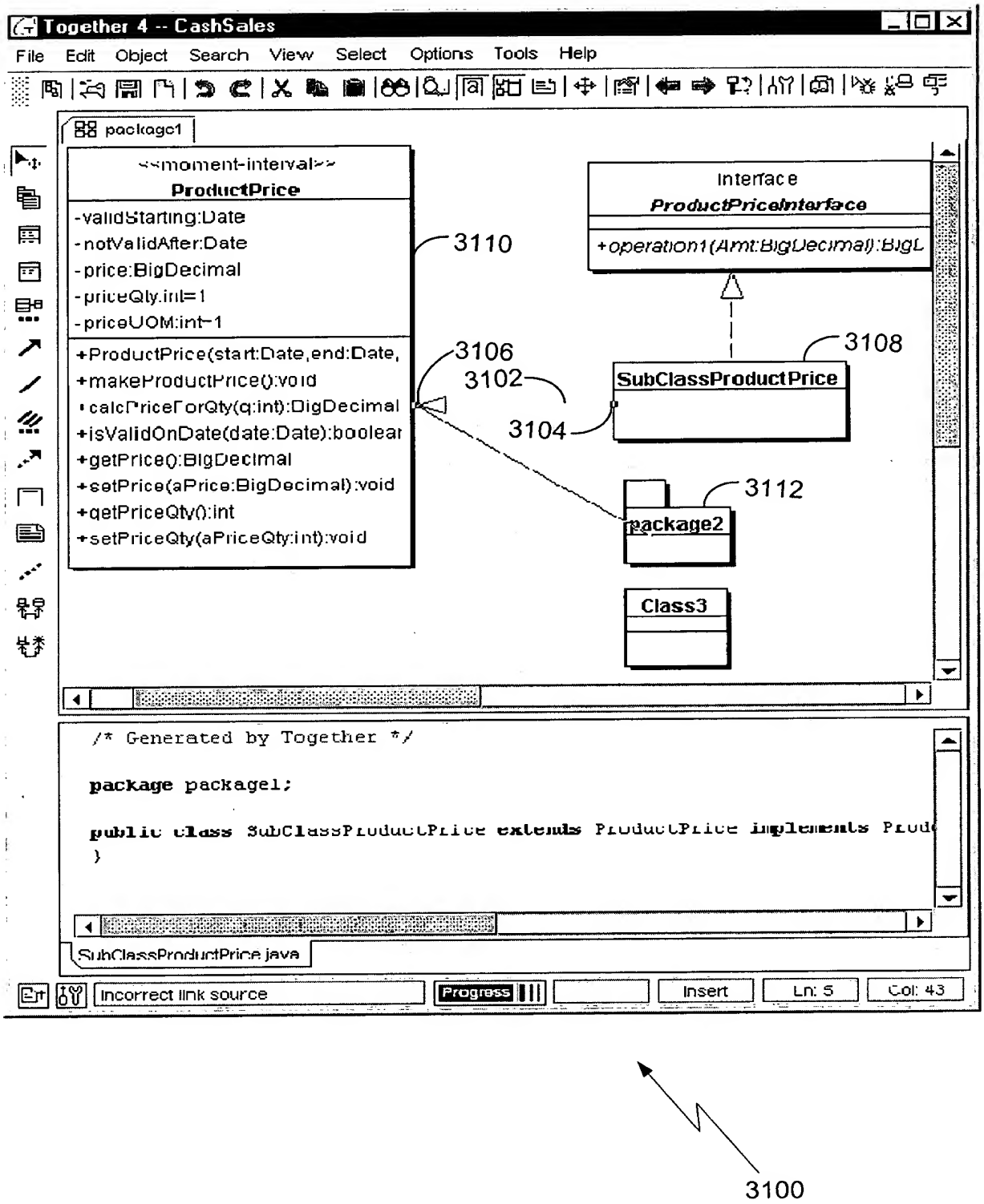

Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
Directory
Current Project
CashSales
DataManagement
package1
package2
Class2.java
Interface1.java
package1.dfPackage
ProductPrice.java
ProductPriceInterface.
SubClassProductPrice
ProblemDomain
UserInterface
CashSales.tpr
CashSales.tws
Class1.java
Decorator.java
default.dfPackage
default.dfPackage.wmf
demoguide.html
IMakeCashSale.java
special.ini
javax.jar
rt.jar
C:\
D:\
E:\
L:\
N:\
P:\
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
3014
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):Big
3010
3002
SubClassProductPrice
package2
Class3
/* Generated by Together */
package package1;
public class SubClassProductPrice extends ProductPrice implements ProductPrice
{
}
3012
3004
3008
3006
SubClassProductPrice.java
public void setPriceQty(int aPriceQty)
Progress
Insert
Ln: 5
Col: 40

FIG. 31


Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty.int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolean
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
3110
Interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigL
3106
3102
3104
3108
SubClassProductPrice
3112
package2
Class3
/* Generated by Together */
package package1;
public class SubClassProductPrice extends ProductPrice implements Prod
}
SubClassProductPrice.java
Incorrect link source
Progress
Insert
Ln: 5
Col: 43
3100

3200

FIG. 32

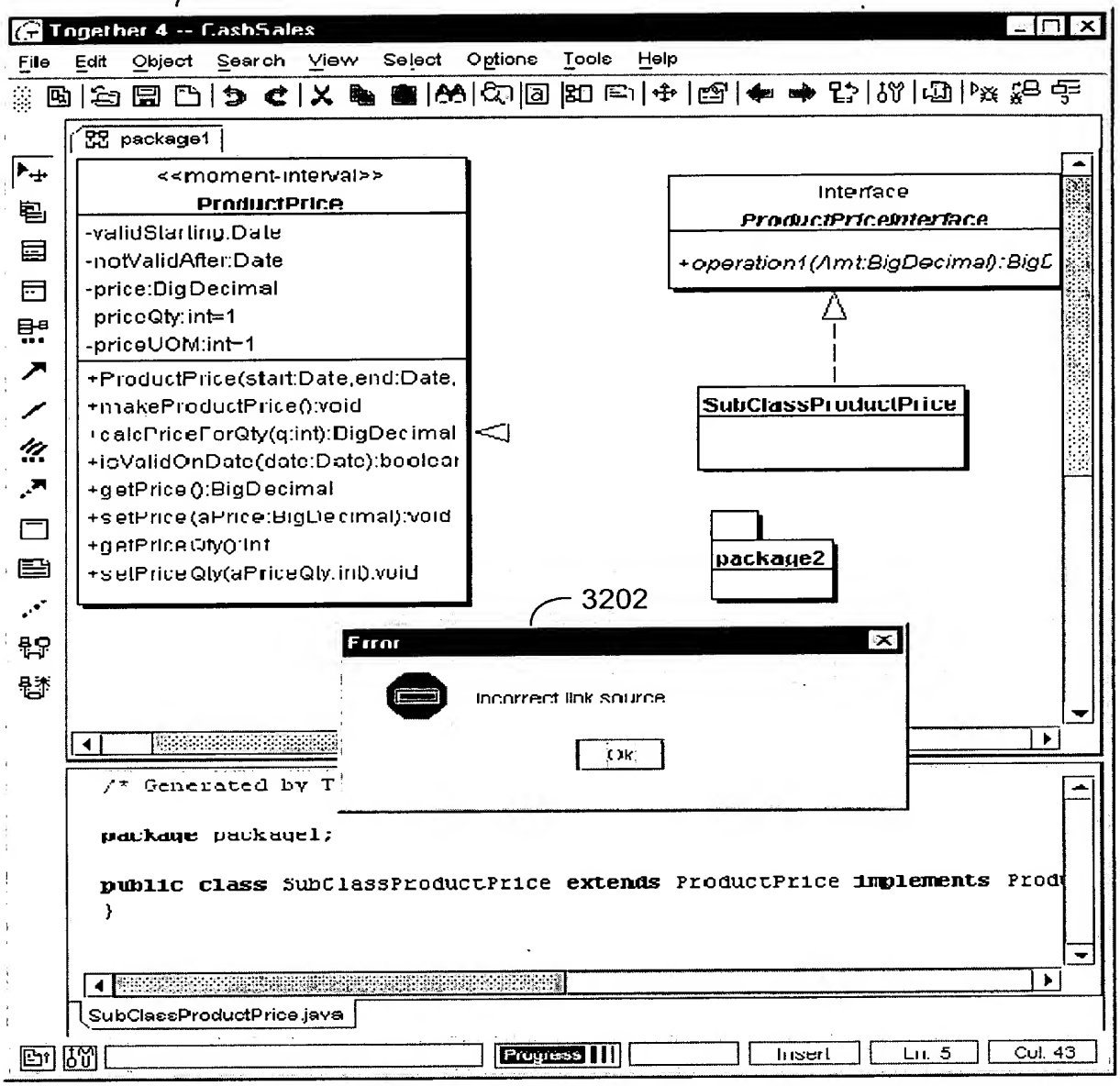

Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolean
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
Interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
SubClassProductPrice
package2
3202
Error
Incorrect link source
Ok
/* Generated by T
package package1;
public class SubClassProductPrice extends ProductPrice implements Prod
}
SubClassProductPrice.java
Progress
Insert
Ln. 5
Col. 43

FIG. 33

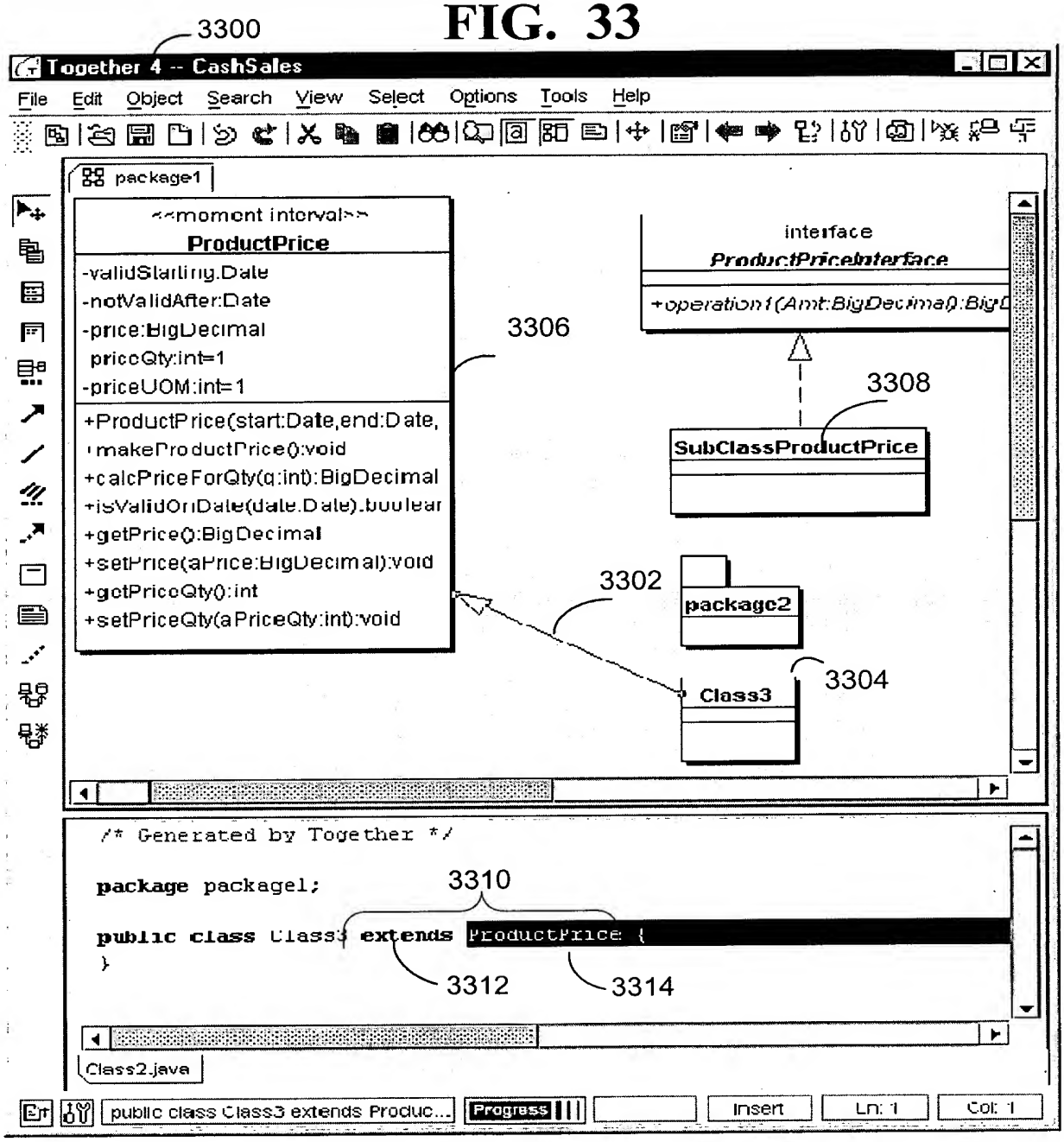

3300
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolean
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
3306
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
3308
SubClassProductPrice
3302
package2
Class3
3304
/* Generated by Together */
package package1;
3310
public class Class3 extends ProductPrice {
}
3312
3314
Class2.java
public class Class3 extends Produc...
Progress
Insert
Ln: 1
Col: 1

FIG. 34

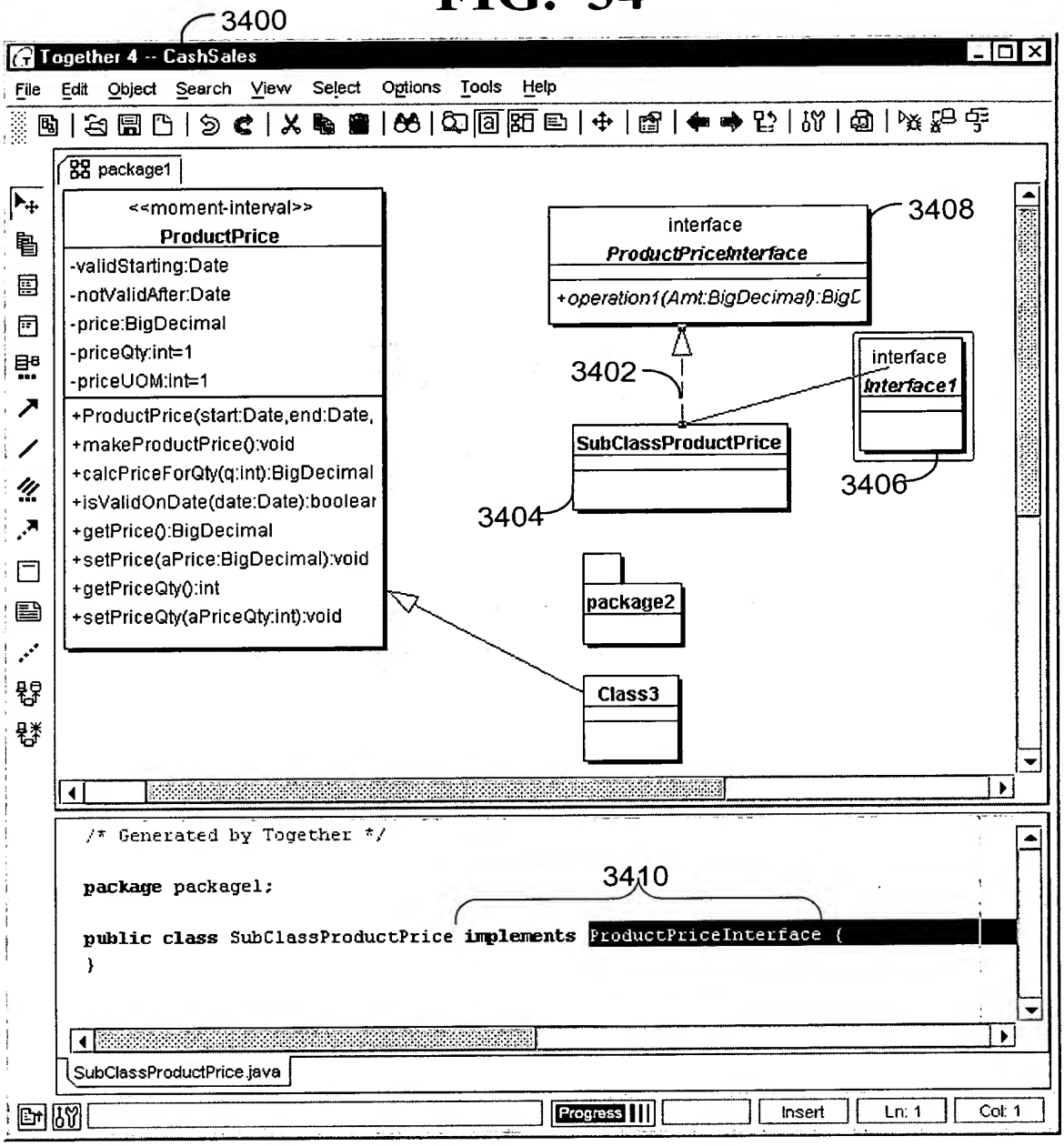

3400
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
3408
3402
interface
Interface1
SubClassProductPrice
3404
3406
package2
Class3
/* Generated by Together */
package package1;
3410
public class SubClassProductPrice implements ProductPriceInterface {
}
SubClassProductPrice.java
Progress
Insert
Ln: 1
Col: 1

FIG. 35

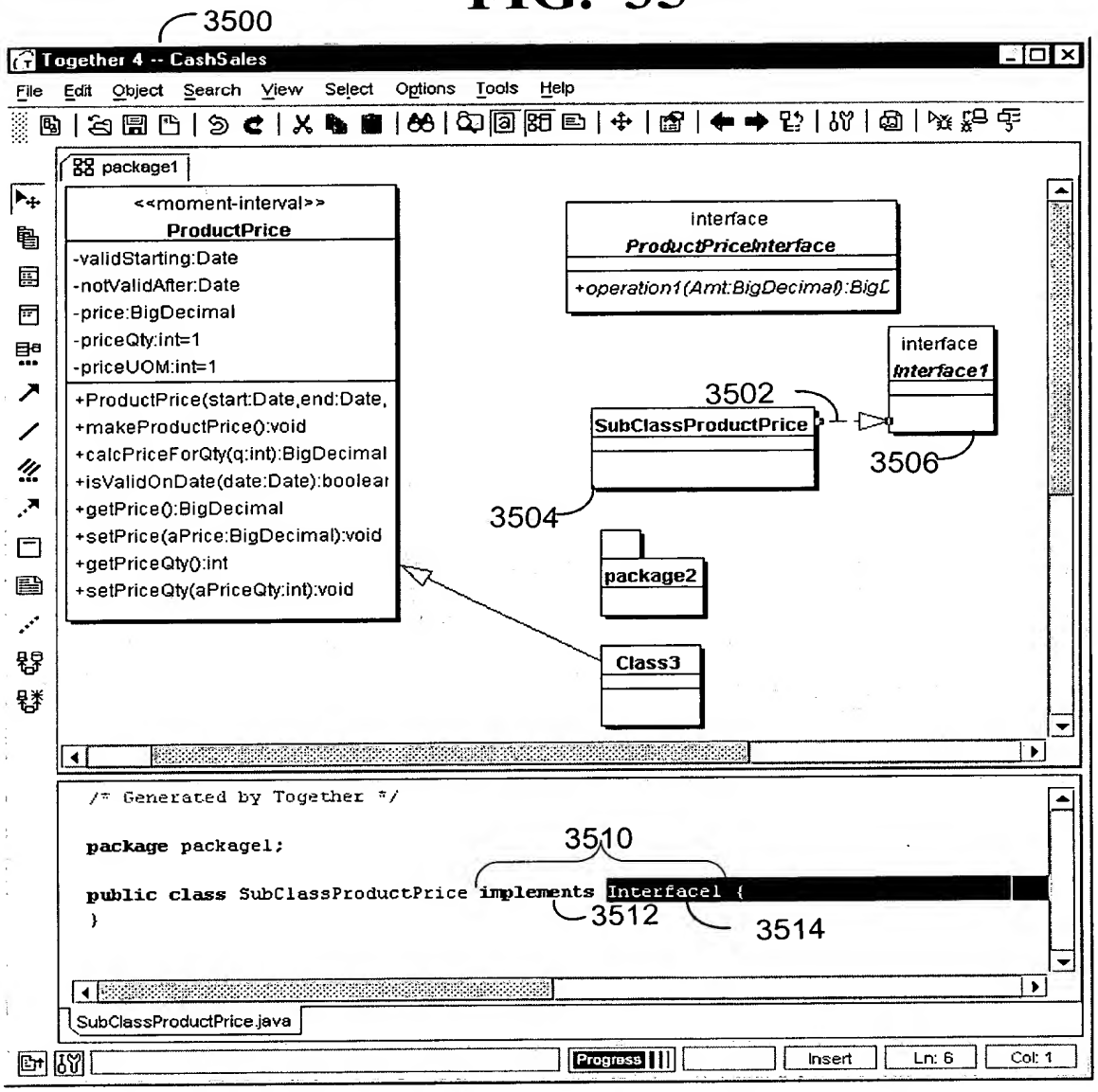

3500
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigL
interface
Interface1
3502
SubClassProductPrice
3506
3504
package2
Class3
/* Generated by Together */
package package1;
3510
public class SubClassProductPrice implements Interface1 {
}
3512
3514
SubClassProductPrice.java
Progress
Insert
Ln: 6
Col: 1

FIG. 36

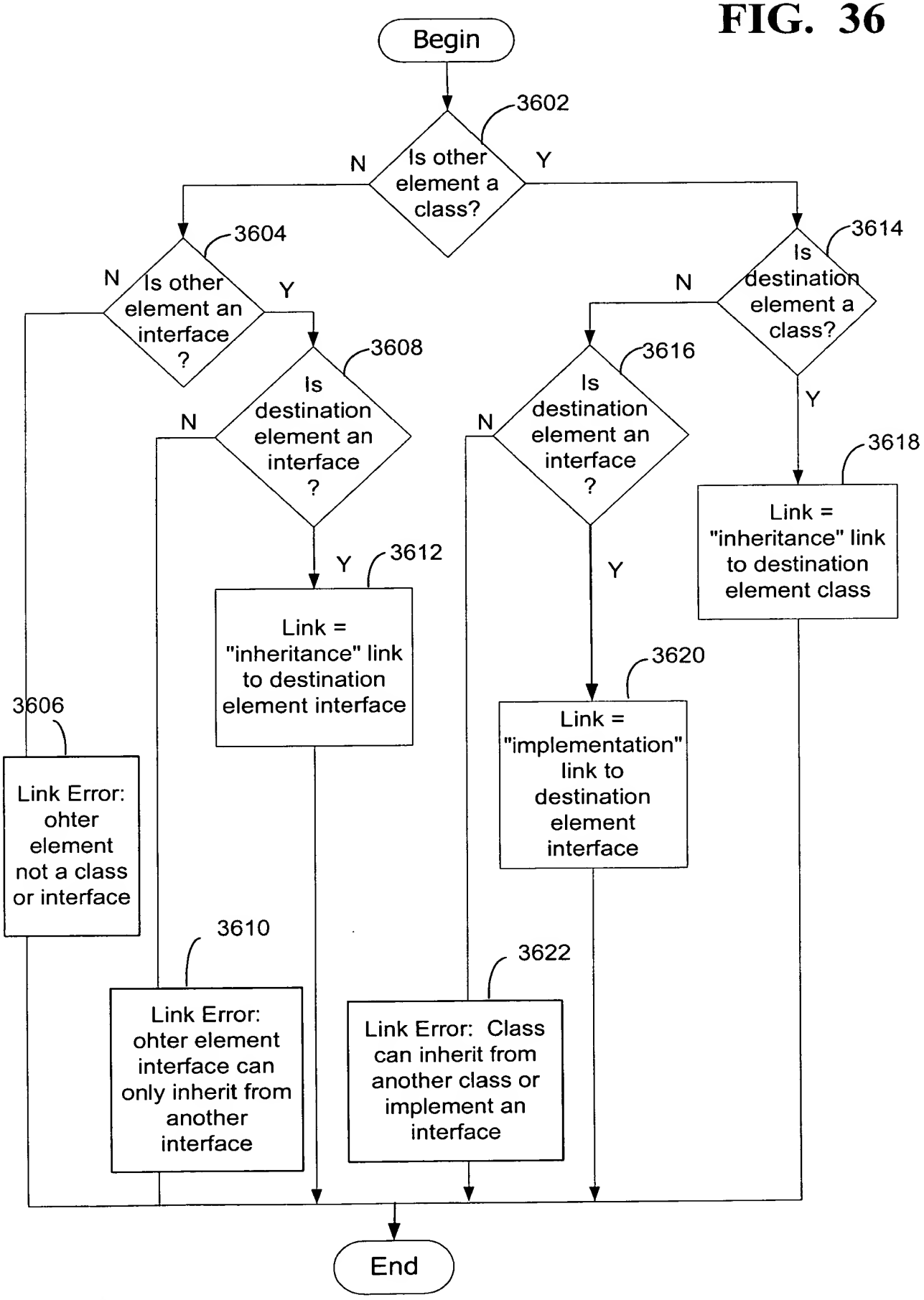

Begin
3602
Is other element a class?
N
Y
3604
Is other element an interface ?
N
Y
3606
Link Error: ohter element not a class or interface
3608
Is destination element an interface ?
N
Y
3610
Link Error: ohter element interface can only inherit from another interface
3612
Link = "inheritance" link to destination element interface
3614
Is destination element a class?
N
Y
3616
Is destination element an interface ?
N
Y
3618
Link = "inheritance" link to destination element class
3620
Link = "implementation" link to destination element interface
3622
Link Error: Class can inherit from another class or implement an interface
End

FIG. 37

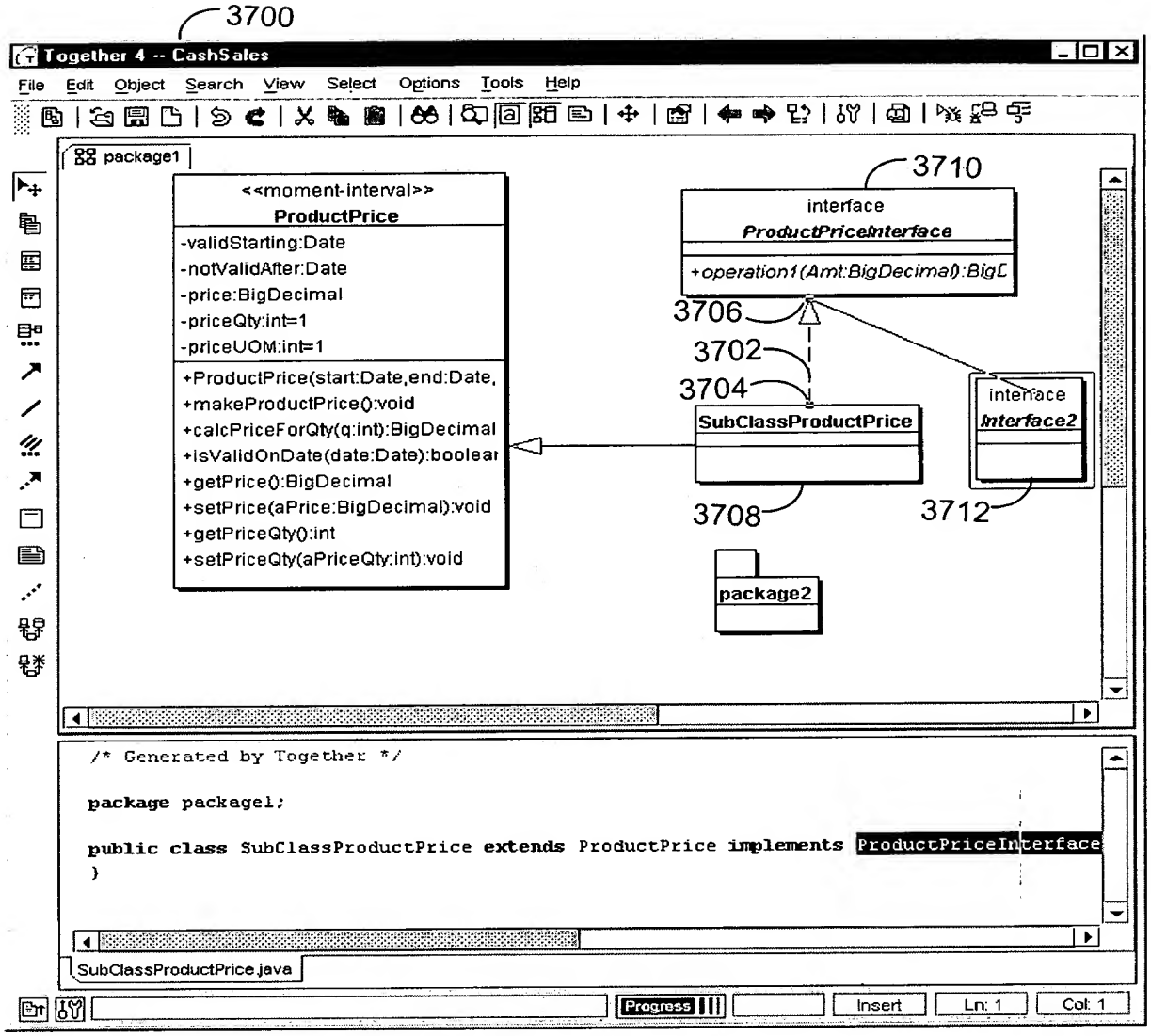

3700
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
3710
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
3706
3702
3704
SubClassProductPrice
3708
interface
Interface2
3712
package2
/* Generated by Together */
package package1;
public class SubClassProductPrice extends ProductPrice implements ProductPriceInterface
}
SubClassProductPrice.java
Progress
Insert
Ln: 1
Col: 1

FIG. 38

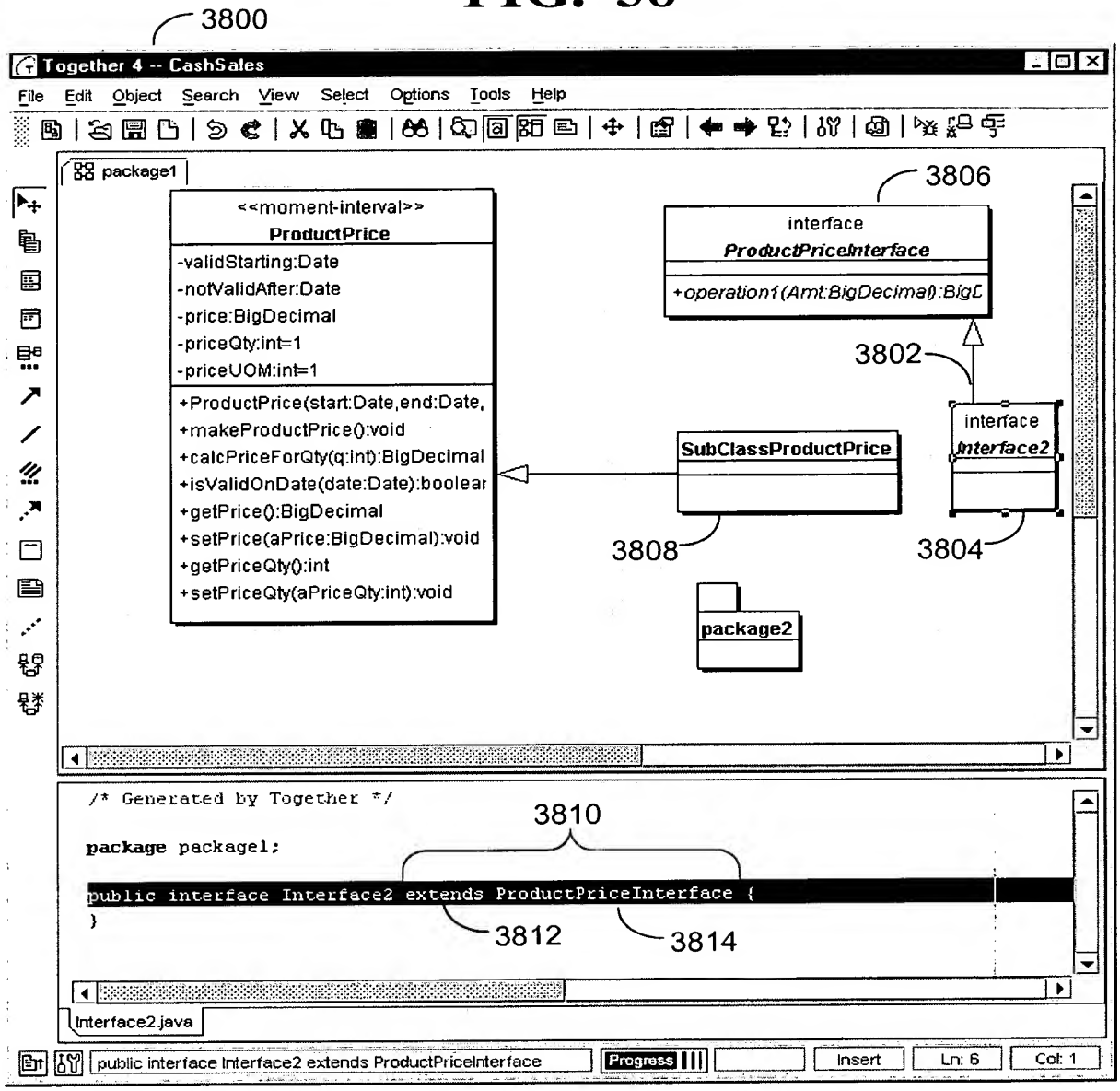

3800
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
3806
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
3802
interface
Interface2
SubClassProductPrice
3808
3804
package2
/* Generated by Together */
3810
package package1;
public interface Interface2 extends ProductPriceInterface {
}
3812
3814
Interface2.java
public interface Interface2 extends ProductPriceInterface
Progress
Insert
Ln: 6
Col: 1

FIG. 39

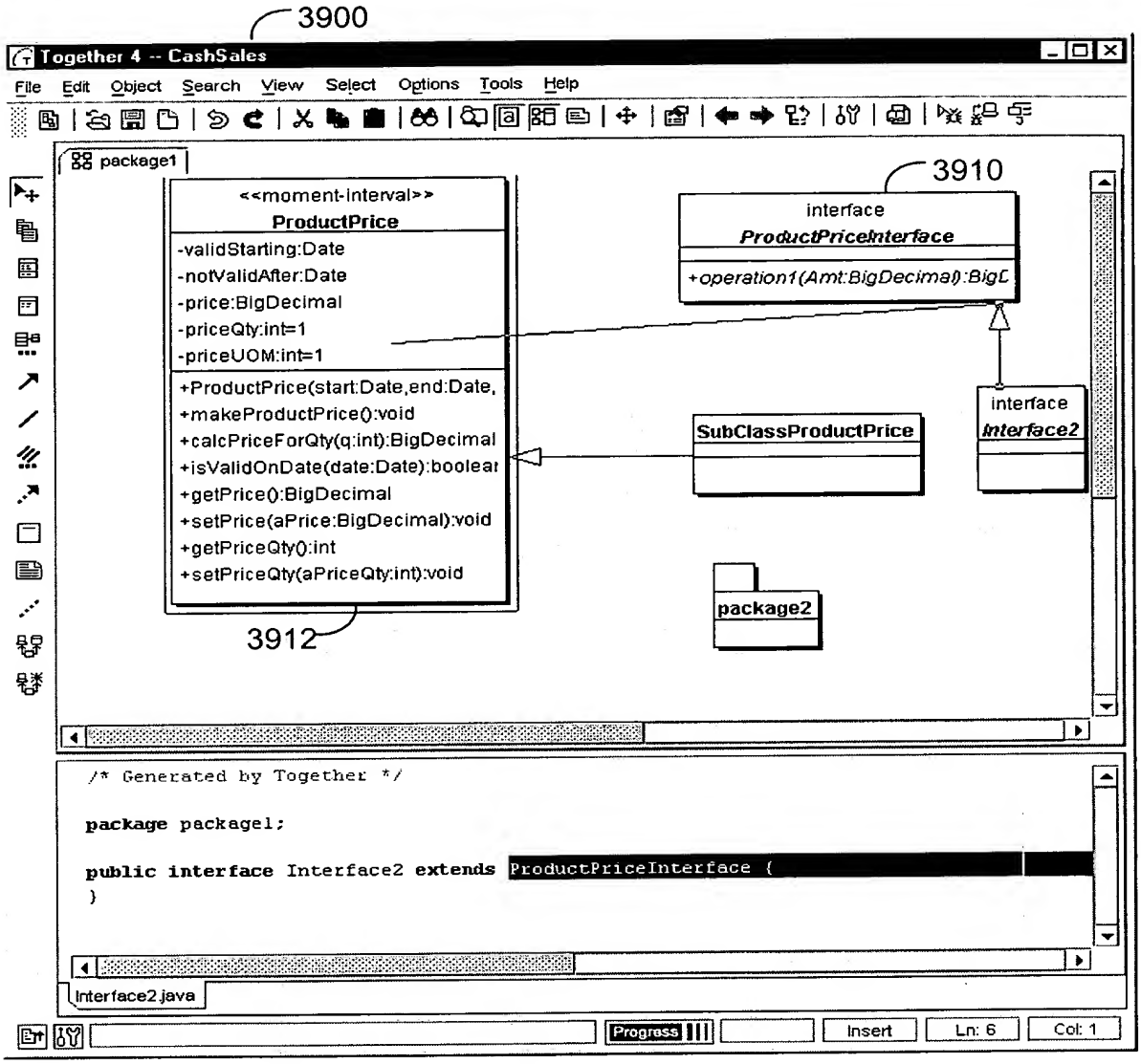

3900
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
3912
3910
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
SubClassProductPrice
interface
Interface2
package2
/* Generated by Together */
package package1;
public interface Interface2 extends ProductPriceInterface {
}
Interface2.java
Progress
Insert
Ln: 6
Col: 1

FIG. 40

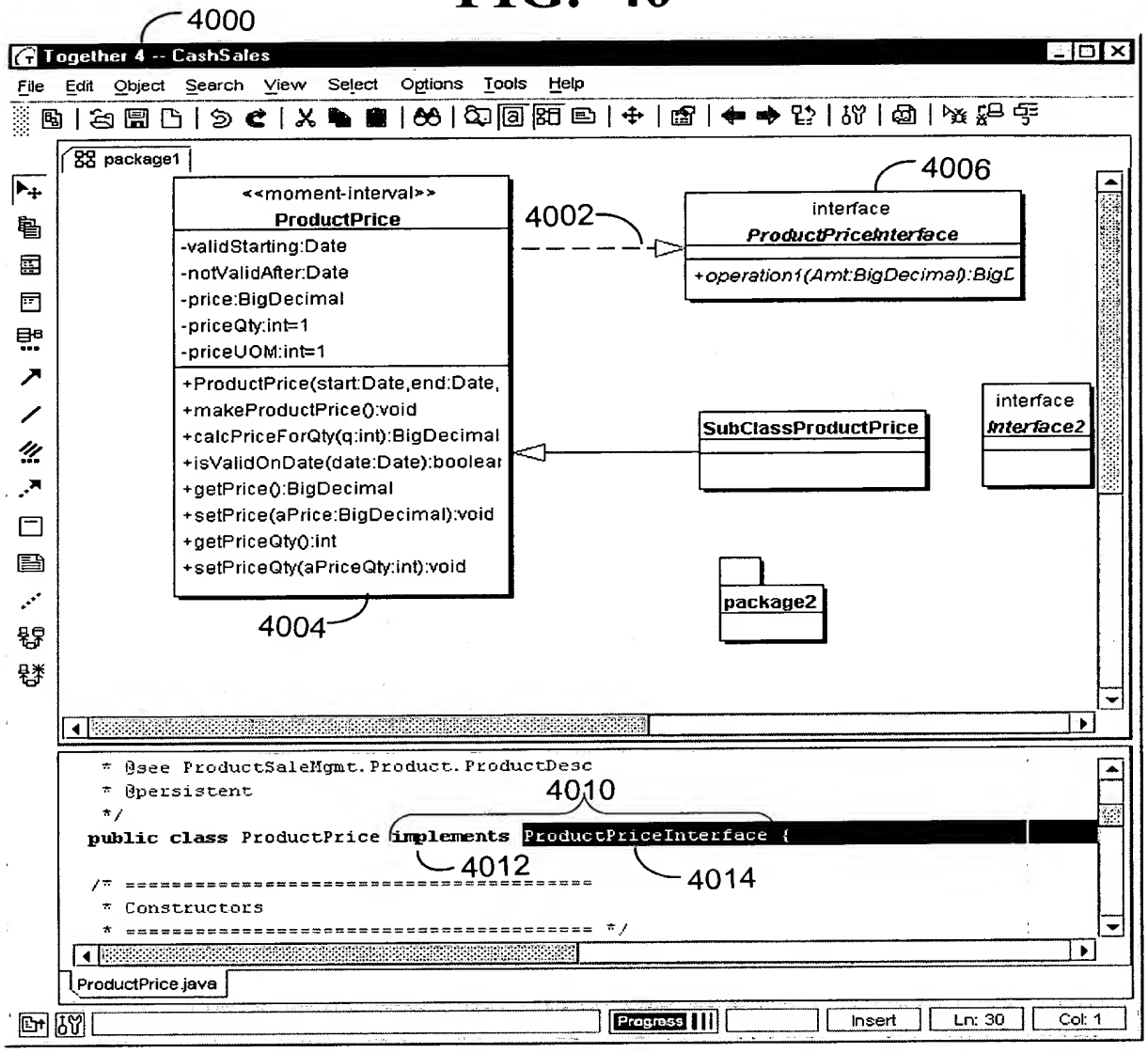

4000
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
4002
4004
4006
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigL
SubClassProductPrice
interface
Interface2
package2
* @see ProductSaleMgmt.Product.ProductDesc
* @persistent
*/
public class ProductPrice implements ProductPriceInterface {
4010
4012
4014
/* ==
* Constructors
* == */
ProductPrice.java
Progress
Insert
Ln: 30
Col: 1

FIG. 41

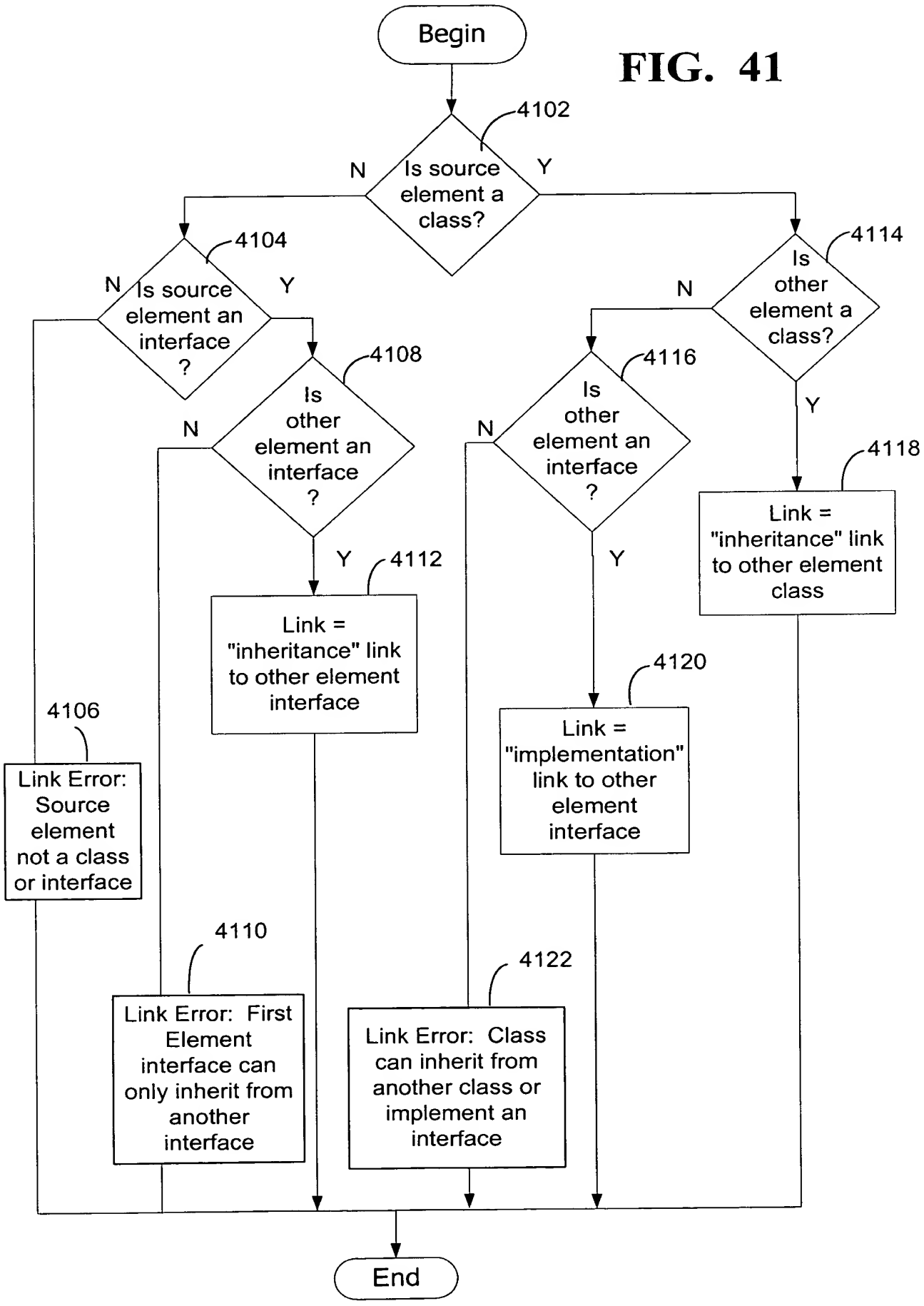

Begin
4102
Is source element a class?
N
Y
4104
Is source element an interface ?
N
Y
4106
Link Error: Source element not a class or interface
4108
Is other element an interface ?
N
Y
4110
Link Error: First Element interface can only inherit from another interface
4112
Link = "inheritance" link to other element interface
4114
Is other element a class?
N
Y
4116
Is other element an interface ?
N
Y
4118
Link = "inheritance" link to other element class
4120
Link = "implementation" link to other element interface
4122
Link Error: Class can inherit from another class or implement an interface
End

FIG. 42

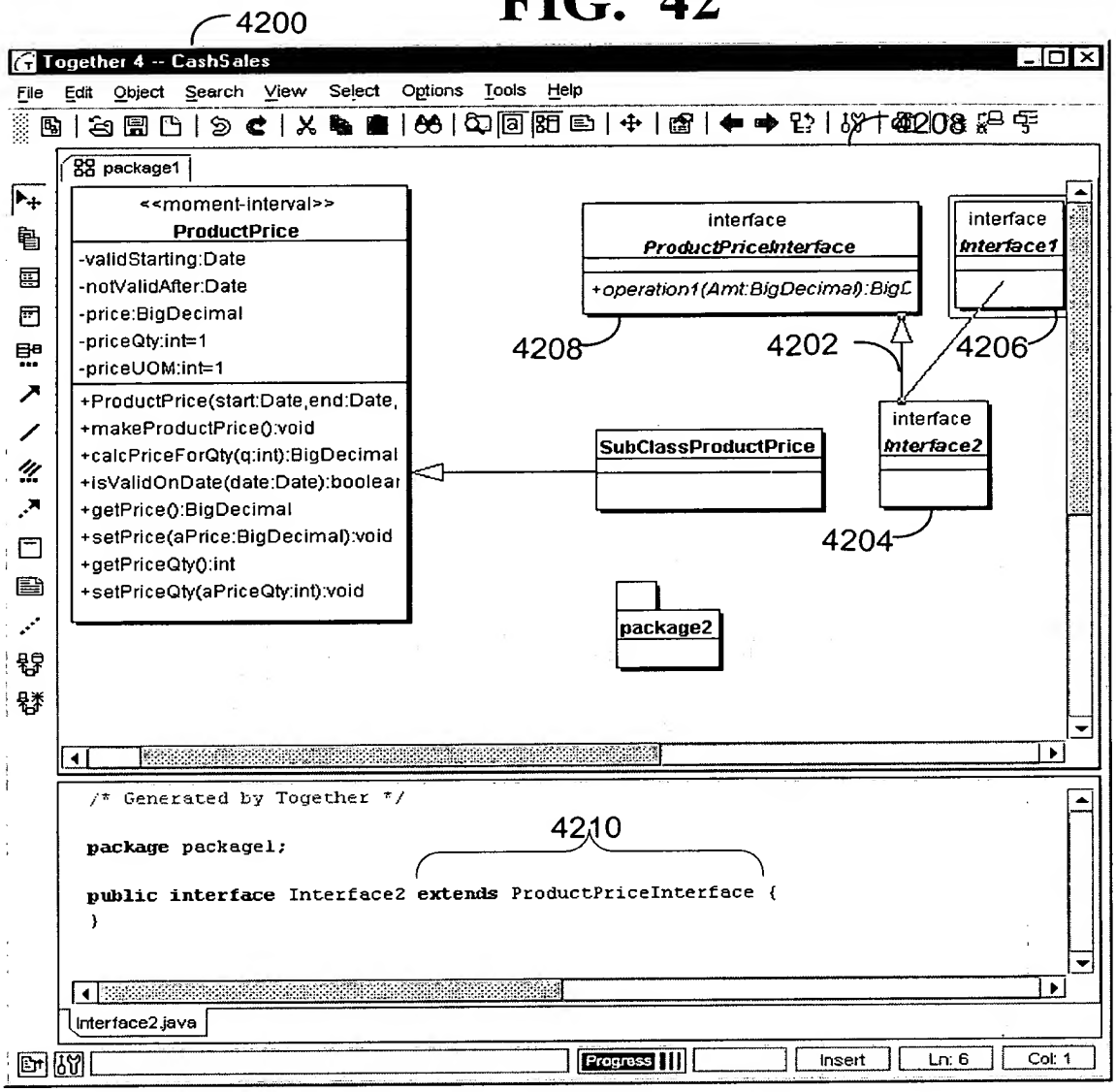

4200
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
4208
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
interface
Interface1
interface
Interface2
SubClassProductPrice
package2
4208
4202
4206
4204
/* Generated by Together */
4210
package package1;
public interface Interface2 extends ProductPriceInterface {
}
Interface2.java
Progress
Insert
Ln: 6
Col: 1

FIG. 43

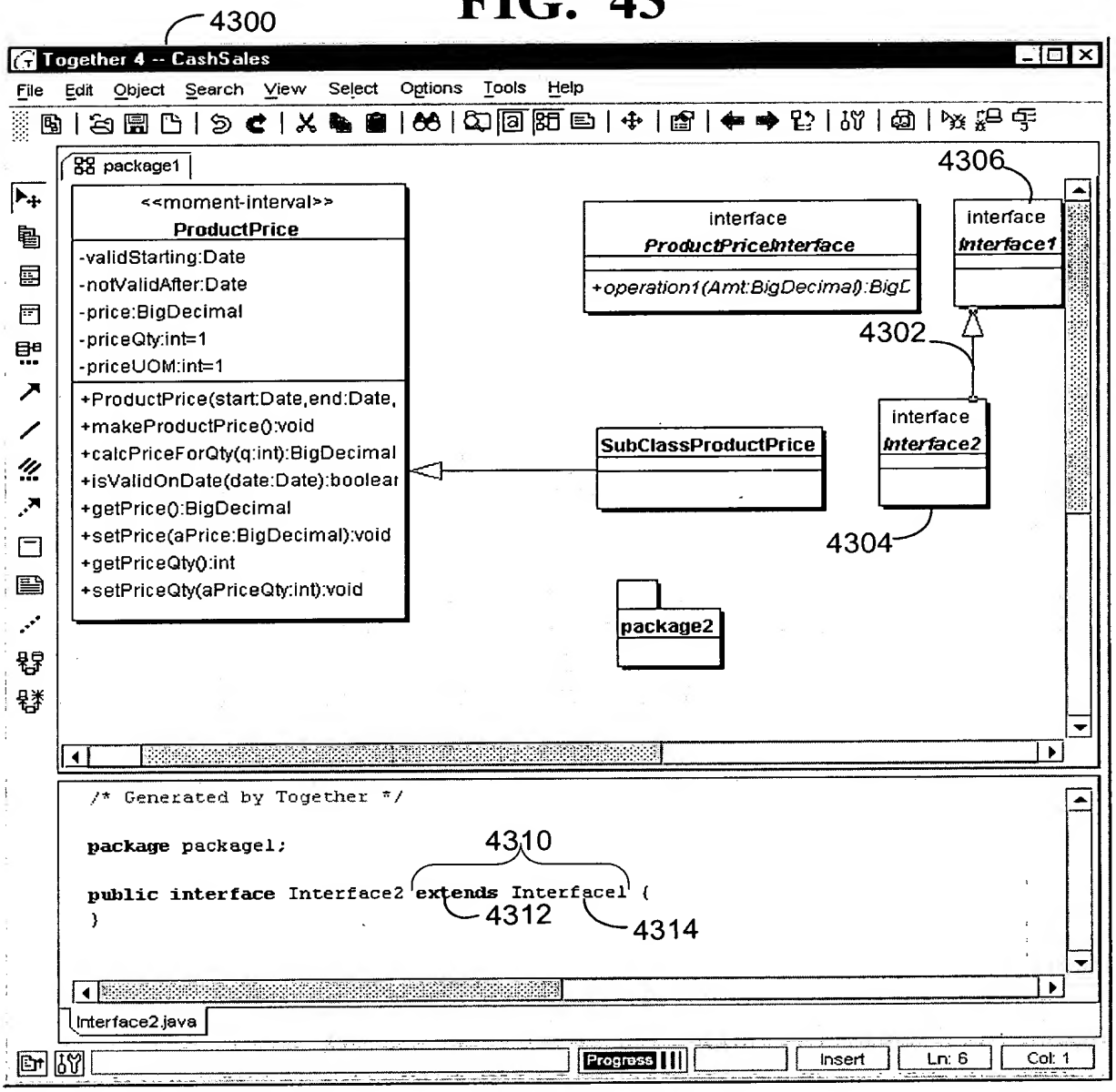

4300
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
package1
4306
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
interface
Interface1
4302
interface
Interface2
SubClassProductPrice
4304
package2
/* Generated by Together */
package package1;
4310
public interface Interface2 extends Interface1 {
}
4312
4314
Interface2.java
Progress
Insert
Ln: 6
Col: 1

FIG. 44

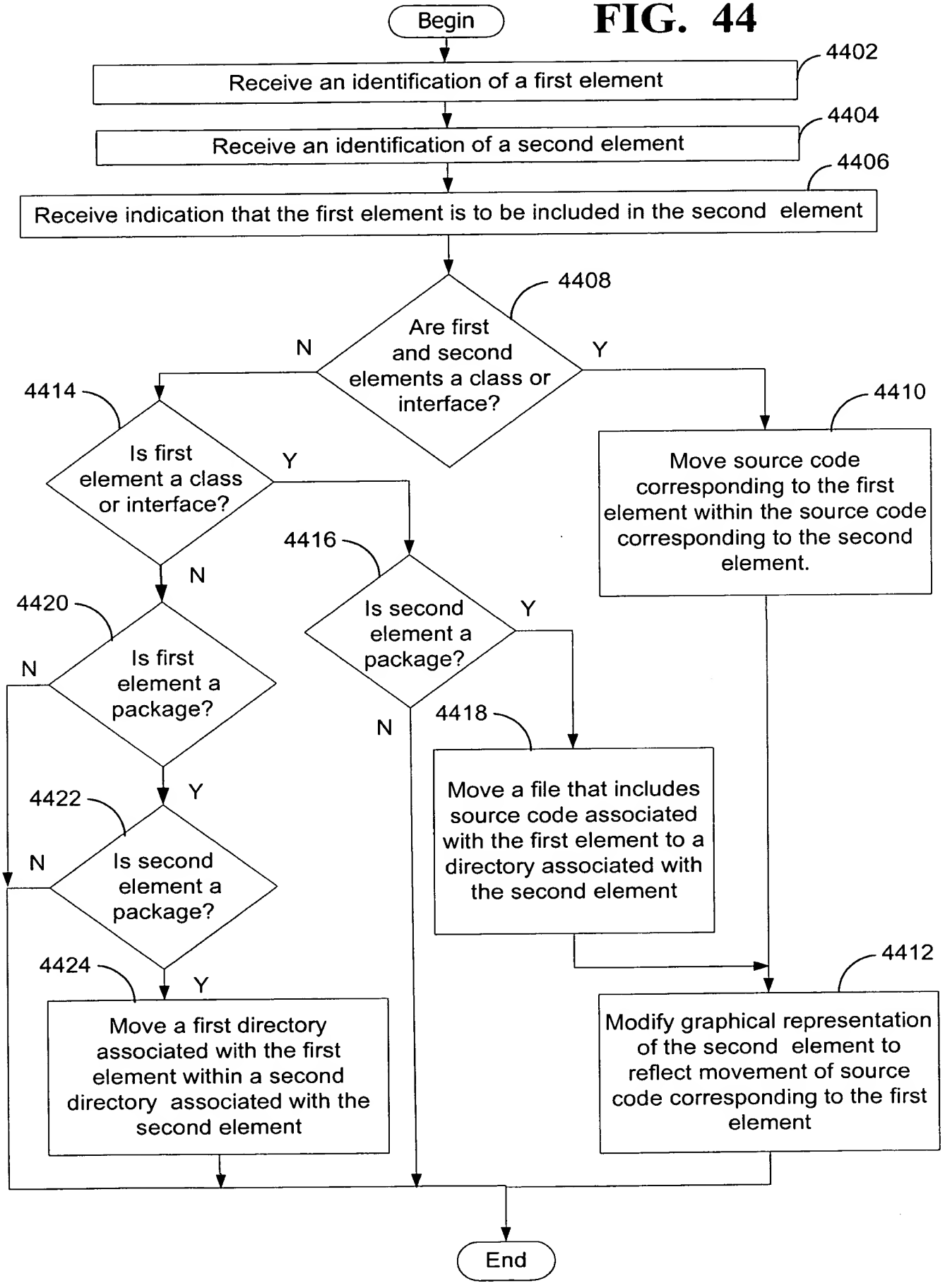

Begin
Receive an identification of a first element
4402
Receive an identification of a second element
4404
Receive indication that the first element is to be included in the second element
4406
Are first and second elements a class or interface?
4408
N
Y
Is first element a class or interface?
4414
Y
N
Move source code corresponding to the first element within the source code corresponding to the second element.
4410
Is second element a package?
4416
Y
N
Is first element a package?
4420
N
Y
Move a file that includes source code associated with the first element to a directory associated with the second element
4418
Is second element a package?
4422
N
Y
Move a first directory associated with the first element within a second directory associated with the second element
4424
Modify graphical representation of the second element to reflect movement of source code corresponding to the first element
4412
End

FIG. 45

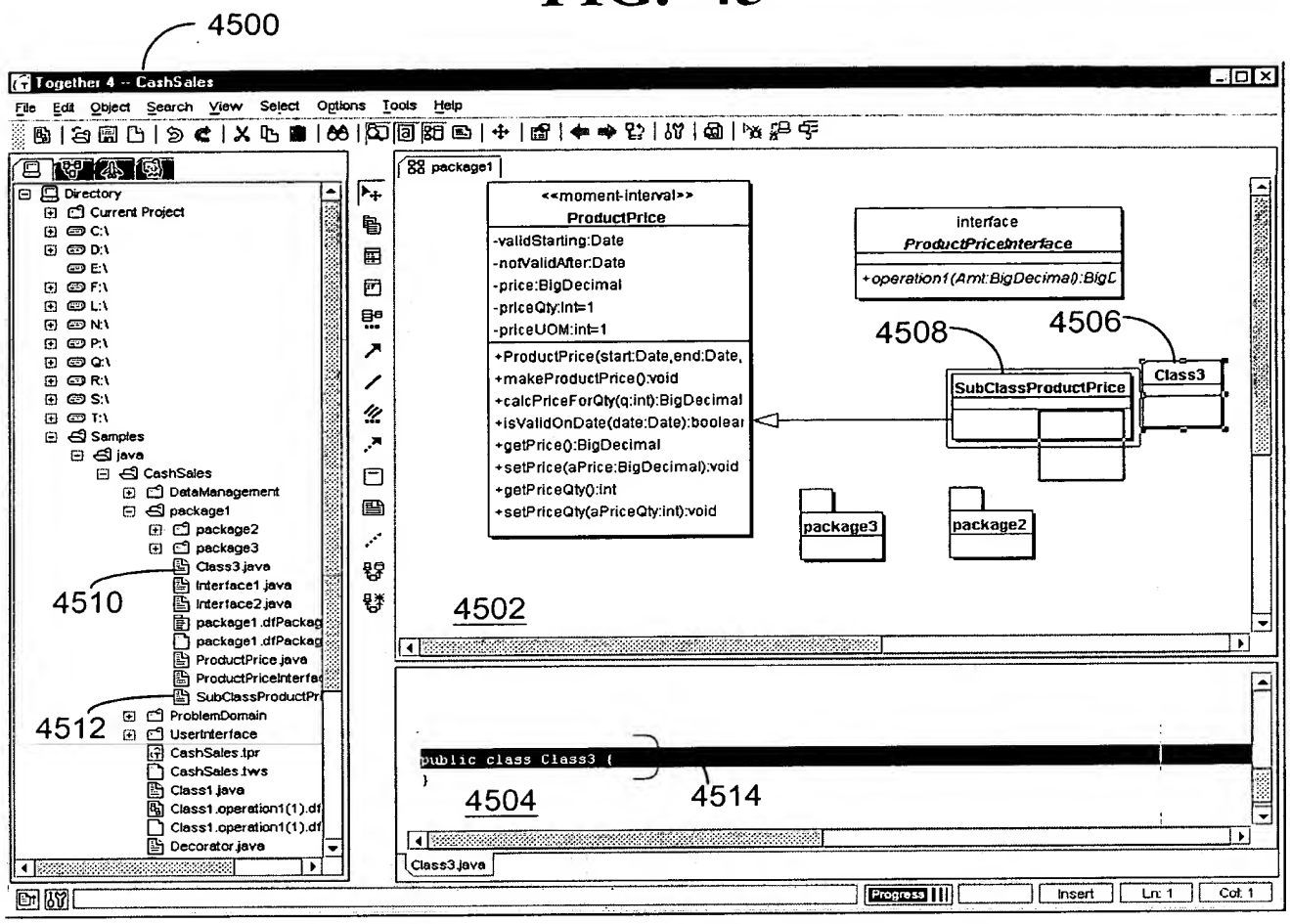

4500
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
Directory
Current Project
C:\
D:\
E:\
F:\
L:\
N:\
P:\
Q:\
R:\
S:\
T:\
Samples
java
CashSales
DataManagement
package1
package2
package3
Class3.java
Interface1.java
Interface2.java
package1.dfPackag
package1.dfPackag
ProductPrice.java
ProductPriceInterfa
SubClassProductPr
ProblemDomain
UserInterface
CashSales.tpr
CashSales.tws
Class1.java
Class1.operation1(1).df
Class1.operation1(1).df
Decorator.java
4510
4512
package1
«moment-interval»
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:Int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():Int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
4508
4506
SubClassProductPrice
Class3
package3
package2
4502
public class Class3 {
}
4504
4514
Class3.java
Progress
Insert
Ln: 1
Col: 1

FIG. 46

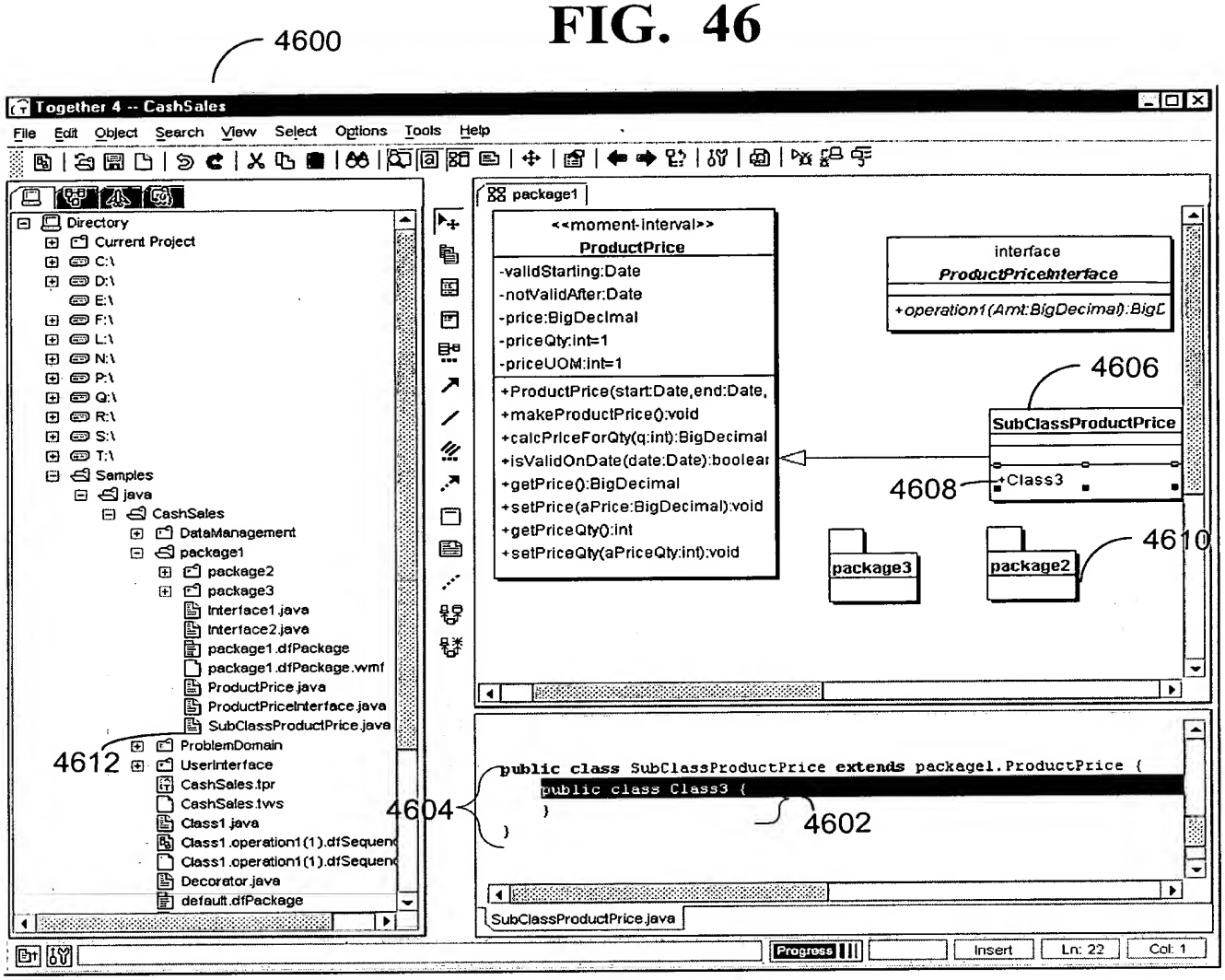

4600
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
Directory
Current Project
C:\
D:\
E:\
F:\
L:\
N:\
P:\
Q:\
R:\
S:\
T:\
Samples
java
CashSales
DataManagement
package1
package2
package3
Interface1.java
Interface2.java
package1.dfPackage
package1.dfPackage.wmf
ProductPrice.java
ProductPriceInterface.java
SubClassProductPrice.java
ProblemDomain
UserInterface
CashSales.tpr
CashSales.tws
Class1.java
Class1.operation1(1).dfSequen
Class1.operation1(1).dfSequen
Decorator.java
default.dfPackage
4612
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigL
4606
SubClassProductPrice
4608
+Class3
package3
package2
4610
4604
public class SubClassProductPrice extends package1.ProductPrice {
public class Class3 {
}
}
4602
SubClassProductPrice.java
Progress
Insert
Ln: 22
Col: 1

FIG. 47

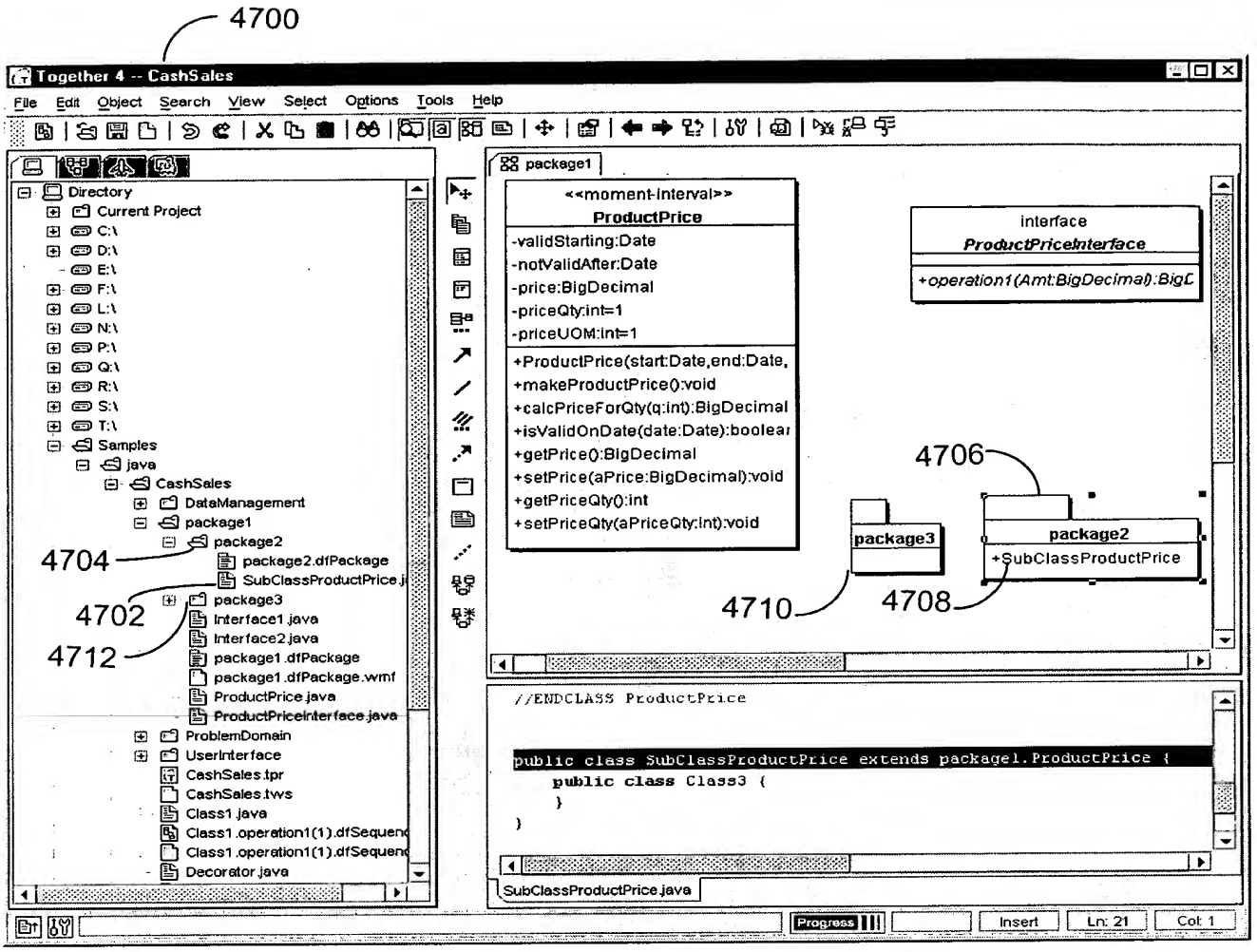

4700
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
Directory
Current Project
C:\
D:\
E:\
F:\
L:\
N:\
P:\
Q:\
R:\
S:\
T:\
Samples
java
CashSales
DataManagement
package1
package2
package2.dfPackage
SubClassProductPrice.j
package3
Interface1.java
Interface2.java
package1.dfPackage
package1.dfPackage.wmf
ProductPrice.java
ProductPriceInterface.java
ProblemDomain
UserInterface
CashSales.tpr
CashSales.tws
Class1.java
Class1.operation1(1).dfSequen
Class1.operation1(1).dfSequen
Decorator.java
4704
4702
4712
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
4706
package3
package2
+SubClassProductPrice
4710
4708
//ENDCLASS ProductPrice
public class SubClassProductPrice extends package1.ProductPrice {
public class Class3 {
}
}
SubClassProductPrice.java
Progress
Insert
Ln: 21
Col: 1

FIG. 48

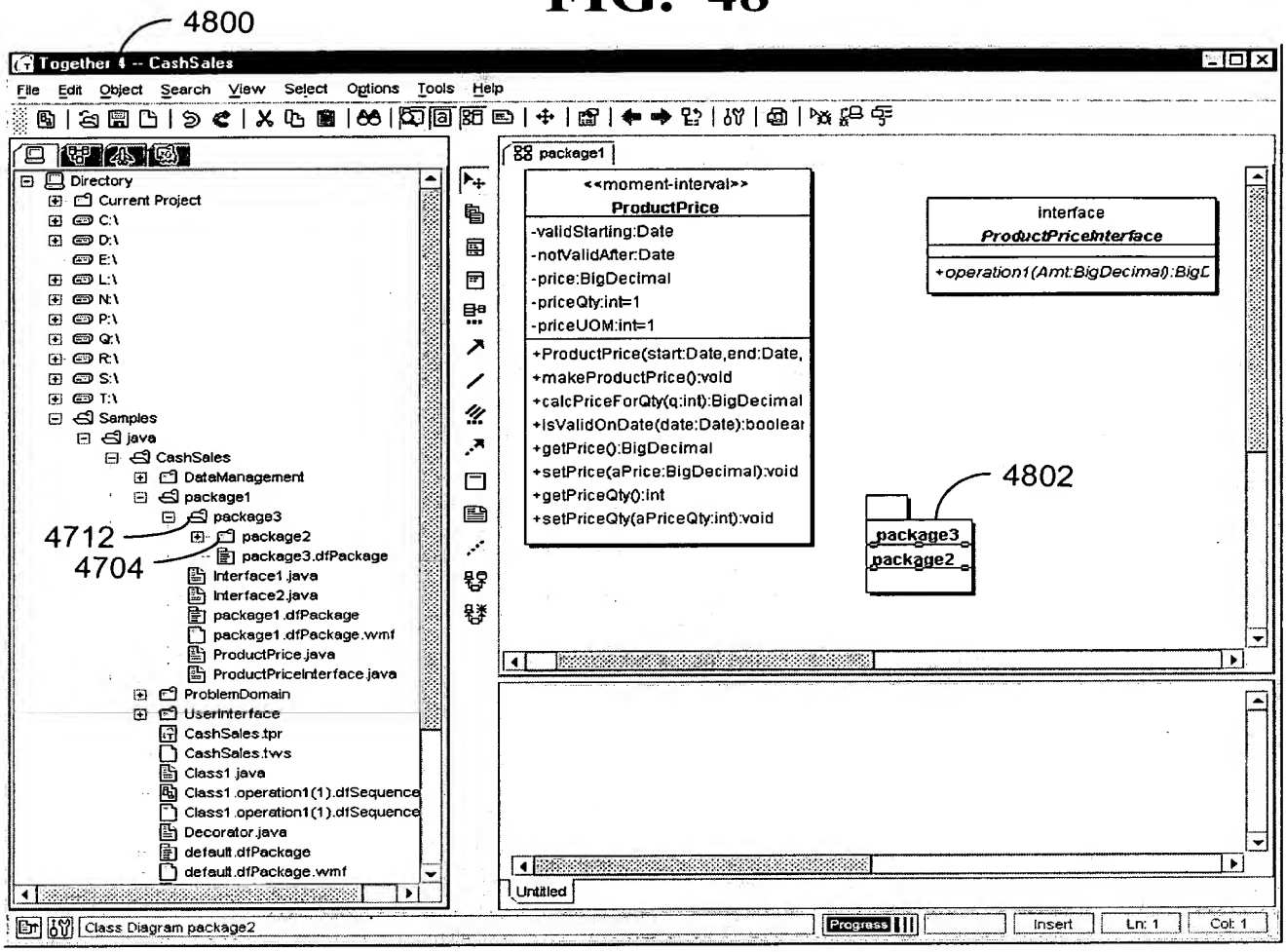

4800
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
Directory
Current Project
C:\
D:\
E:\
L:\
N:\
P:\
Q:\
R:\
S:\
T:\
Samples
java
CashSales
DateManagement
package1
package3
package2
package3.dfPackage
Interface1.java
Interface2.java
package1.dfPackage
package1.dfPackage.wmf
ProductPrice.java
ProductPriceInterface.java
ProblemDomain
UserInterface
CashSales.tpr
CashSales.tws
Class1.java
Class1.operation1(1).dfSequence
Class1.operation1(1).dfSequence
Decorator.java
default.dfPackage
default.dfPackage.wmf
4712
4704
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolean
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
4802
package3
package2
Untitled
Class Diagram package2
Progress
Insert
Ln: 1
Col: 1

FIG. 49

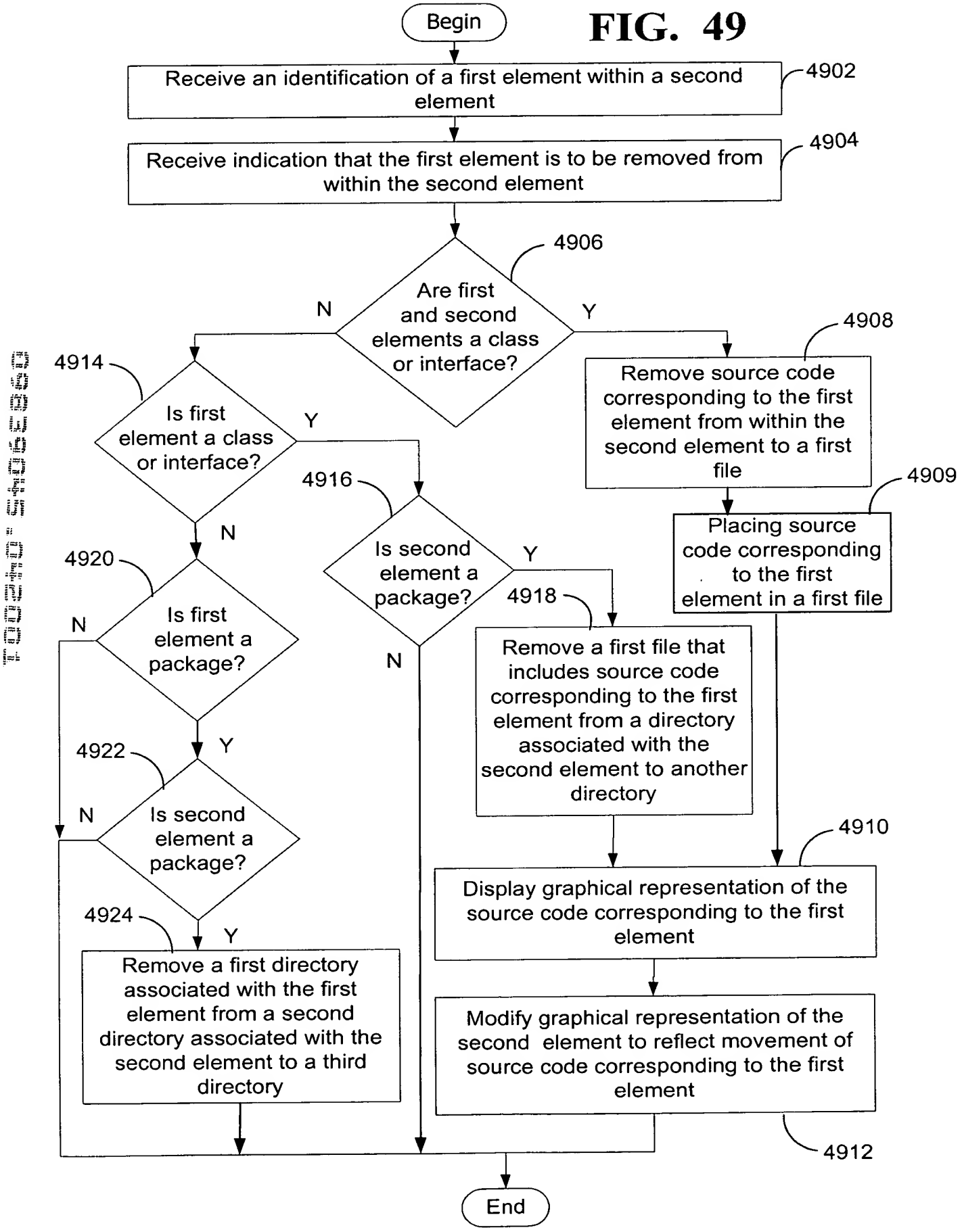

Begin
Receive an identification of a first element within a second element
4902
Receive indication that the first element is to be removed from within the second element
4904
4906
Are first and second elements a class or interface?
N
Y
4908
Remove source code corresponding to the first element from within the second element to a first file
4909
Placing source code corresponding to the first element in a first file
4914
Is first element a class or interface?
Y
N
4916
Is second element a package?
Y
N
4918
Remove a first file that includes source code corresponding to the first element from a directory associated with the second element to another directory
4920
Is first element a package?
N
Y
4922
Is second element a package?
N
Y
4924
Remove a first directory associated with the first element from a second directory associated with the second element to a third directory
4910
Display graphical representation of the source code corresponding to the first element
Modify graphical representation of the second element to reflect movement of source code corresponding to the first element
4912
End

FIG. 50

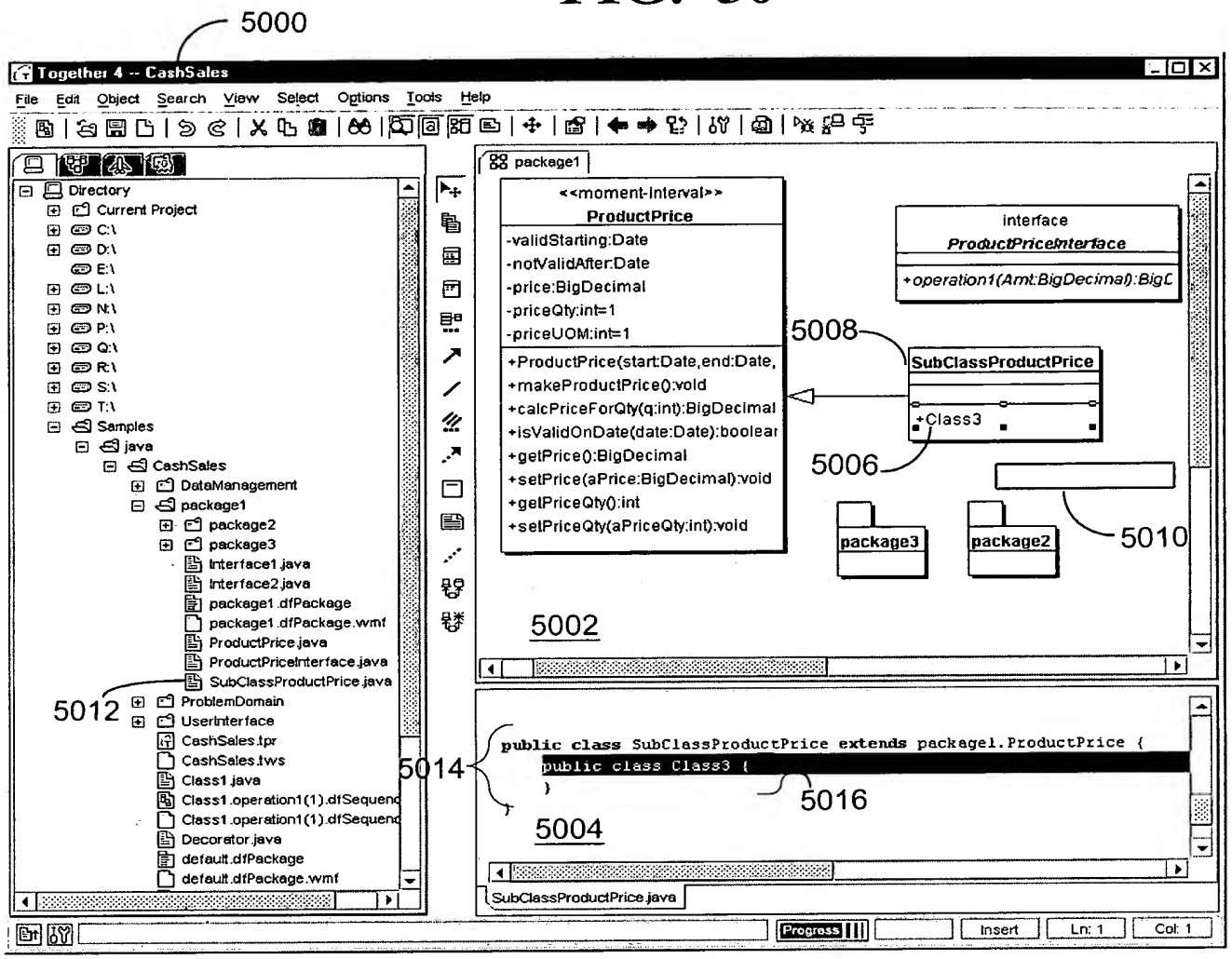

5000
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
Directory
Current Project
C:\
D:\
E:\
L:\
N:\
P:\
Q:\
R:\
S:\
T:\
Samples
java
CashSales
DataManagement
package1
package2
package3
Interface1.java
Interface2.java
package1.dfPackage
package1.dfPackage.wmf
ProductPrice.java
ProductPriceInterface.java
SubClassProductPrice.java
ProblemDomain
UserInterface
CashSales.tpr
CashSales.tws
Class1.java
Class1.operation1(1).dfSequenc
Class1.operation1(1).dfSequenc
Decorator.java
default.dfPackage
default.dfPackage.wmf
5012
package1
«moment-interval»
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
5008
SubClassProductPrice
+Class3
5006
package3
package2
5010
5002
public class SubClassProductPrice extends package1.ProductPrice {
public class Class3 {
}
5014
5016
5004
SubClassProductPrice.java
Progress
Insert
Ln: 1
Col: 1

FIG. 51

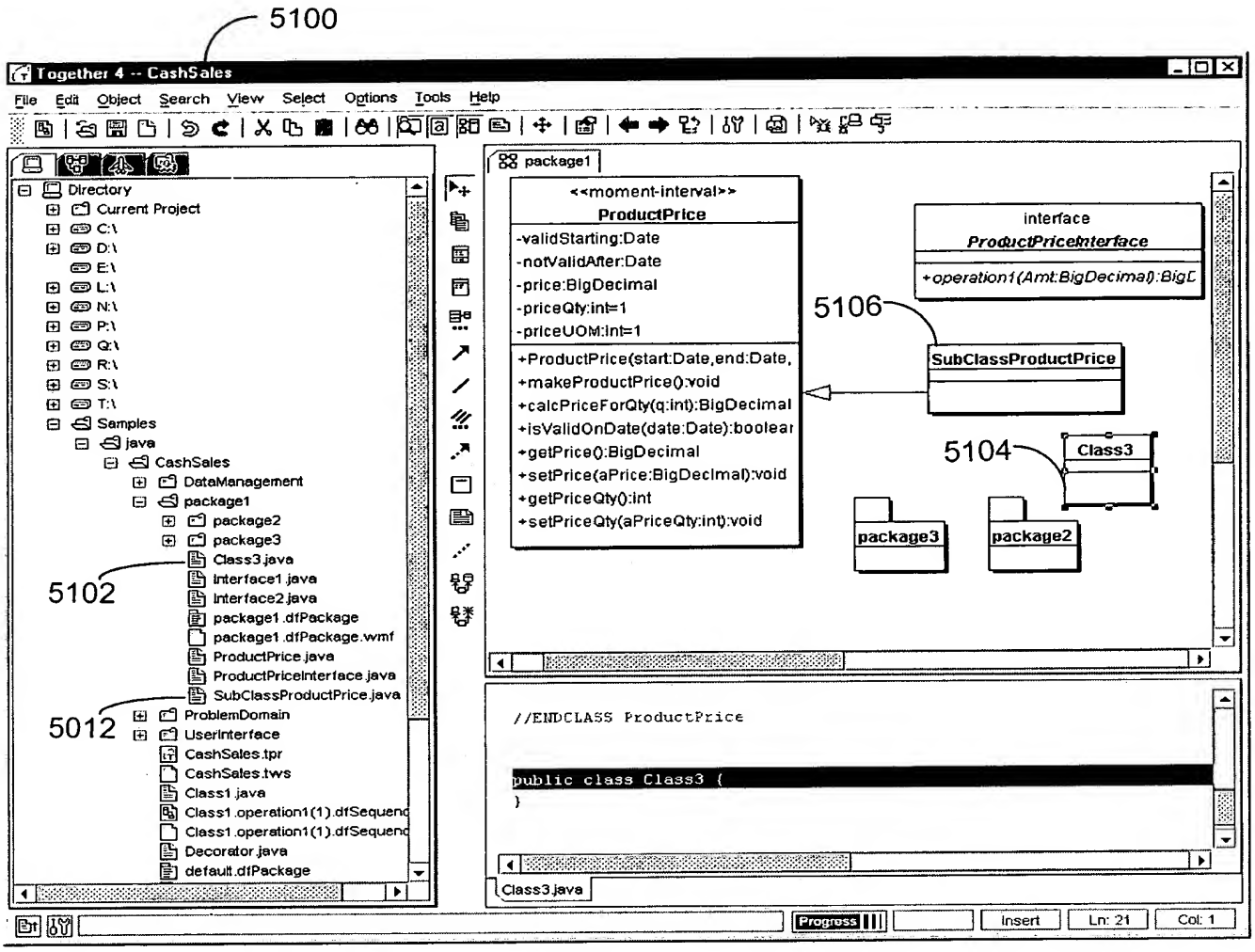

5100
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
Directory
Current Project
C:\
D:\
E:\
L:\
N:\
P:\
Q:\
R:\
S:\
T:\
Samples
java
CashSales
DataManagement
package1
package2
package3
Class3.java
Interface1.java
Interface2.java
package1.dfPackage
package1.dfPackage.wmf
ProductPrice.java
ProductPriceInterface.java
SubClassProductPrice.java
ProblemDomain
UserInterface
CashSales.tpr
CashSales.tws
Class1.java
Class1.operation1(1).dfSequenc
Class1.operation1(1).dfSequenc
Decorator.java
default.dfPackage
5102
5012
package1
<<moment-interval>>
ProductPrice
-validStarting:Date
-notValidAfter:Date
-price:BigDecimal
-priceQty:int=1
-priceUOM:int=1
+ProductPrice(start:Date,end:Date,
+makeProductPrice():void
+calcPriceForQty(q:int):BigDecimal
+isValidOnDate(date:Date):boolear
+getPrice():BigDecimal
+setPrice(aPrice:BigDecimal):void
+getPriceQty():int
+setPriceQty(aPriceQty:int):void
interface
ProductPriceInterface
+operation1(Amt:BigDecimal):BigD
5106
SubClassProductPrice
5104
Class3
package3
package2
//ENDCLASS ProductPrice
public class Class3 {
}
Class3.java
Progress
Insert
Ln: 21
Col: 1

FIG. 52

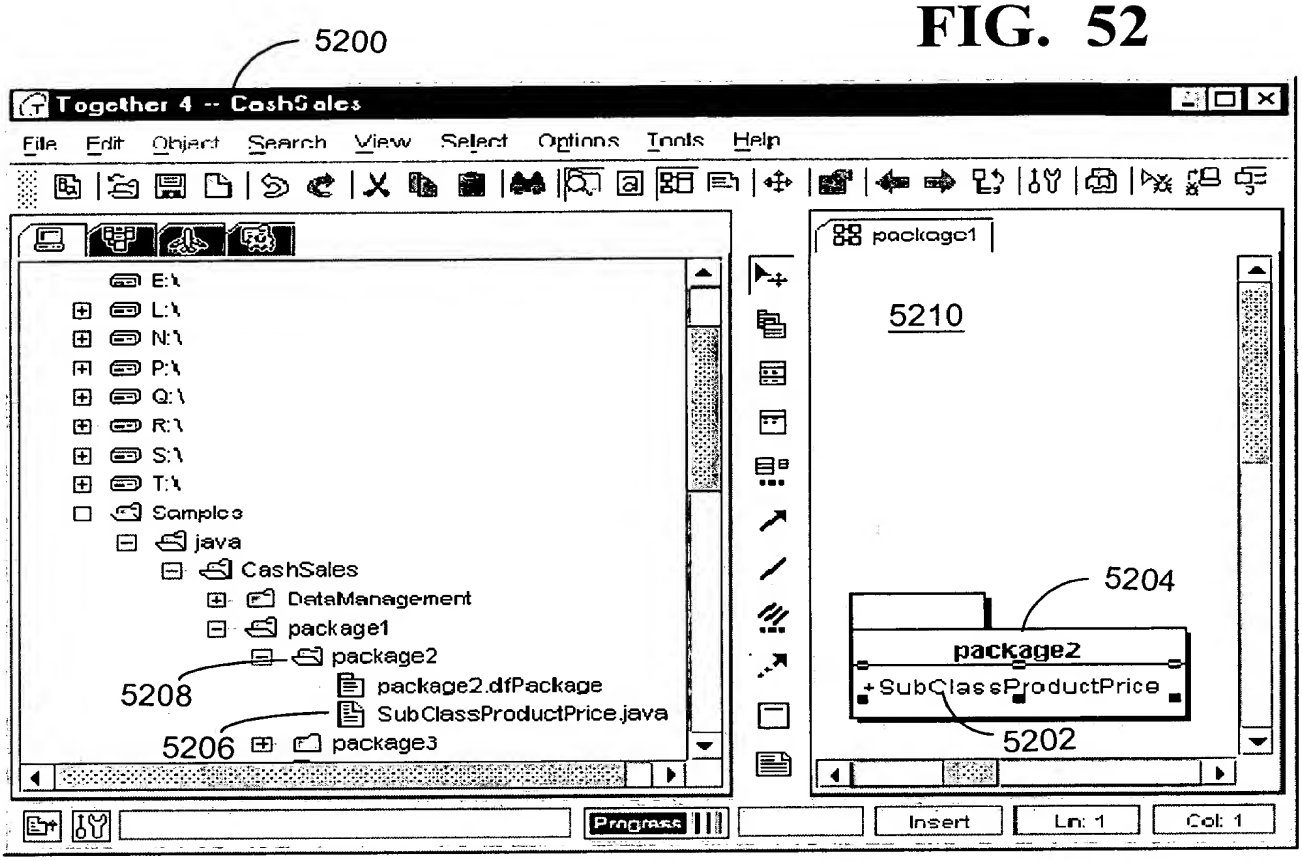

5200
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
E:\
L:\
N:\
P:\
Q:\
R:\
S:\
T:\
Samples
java
CashSales
DataManagement
package1
package2
package2.dfPackage
SubClassProductPrice.java
package3
5208
5206
package1
5210
5204
package2
+SubClassProductPrice
5202
Progress
Insert
Ln: 1
Col: 1

FIG. 53

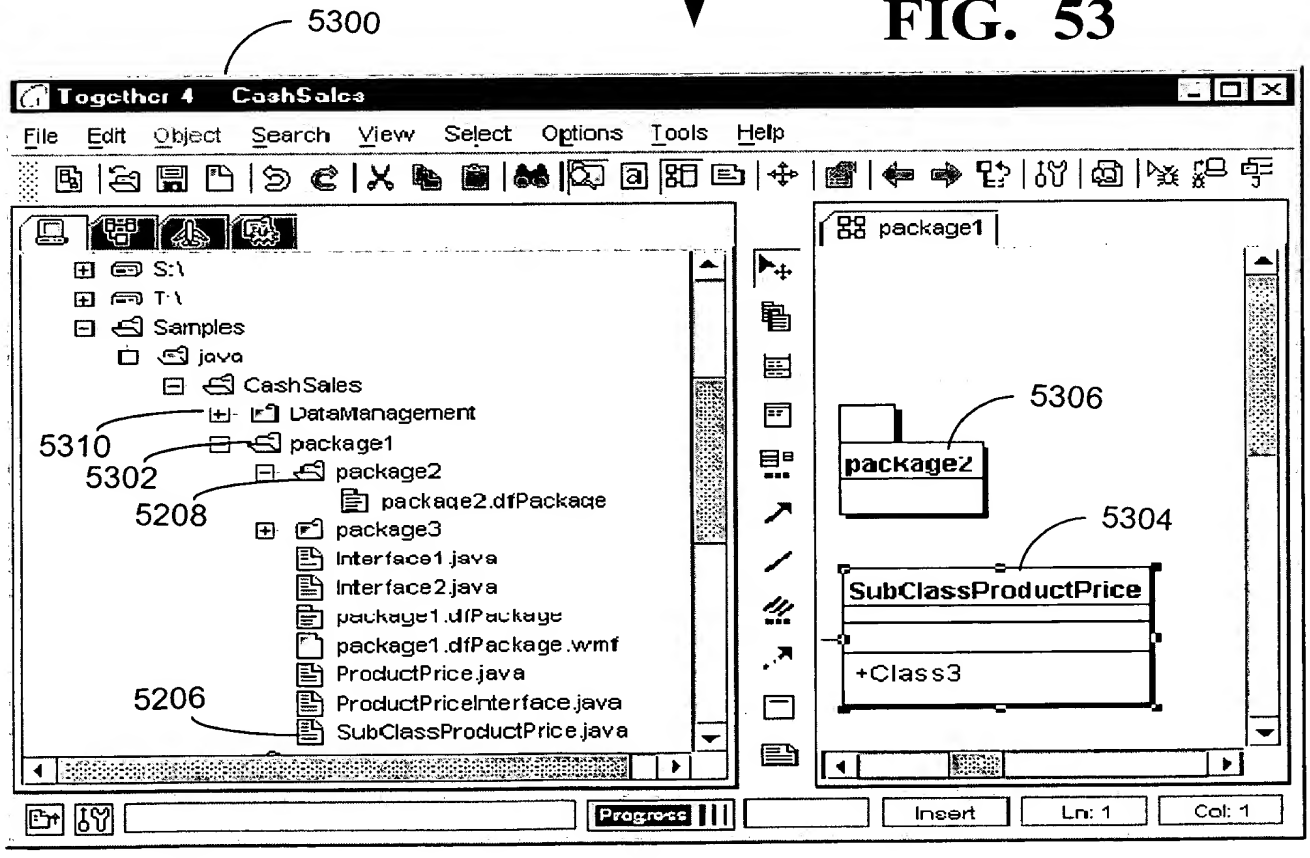

5300
Together 4 CashSales
File Edit Object Search View Select Options Tools Help
S:\
T:\
Samples
java
CashSales
DataManagement
package1
package2
package2.dfPackage
package3
Interface1.java
Interface2.java
package1.dfPackage
package1.dfPackage.wmf
ProductPrice.java
ProductPriceInterface.java
SubClassProductPrice.java
5310
5302
5208
5206
package1
5306
package2
5304
SubClassProductPrice
+Class3
Progress
Insert
Ln: 1
Col: 1

FIG. 54

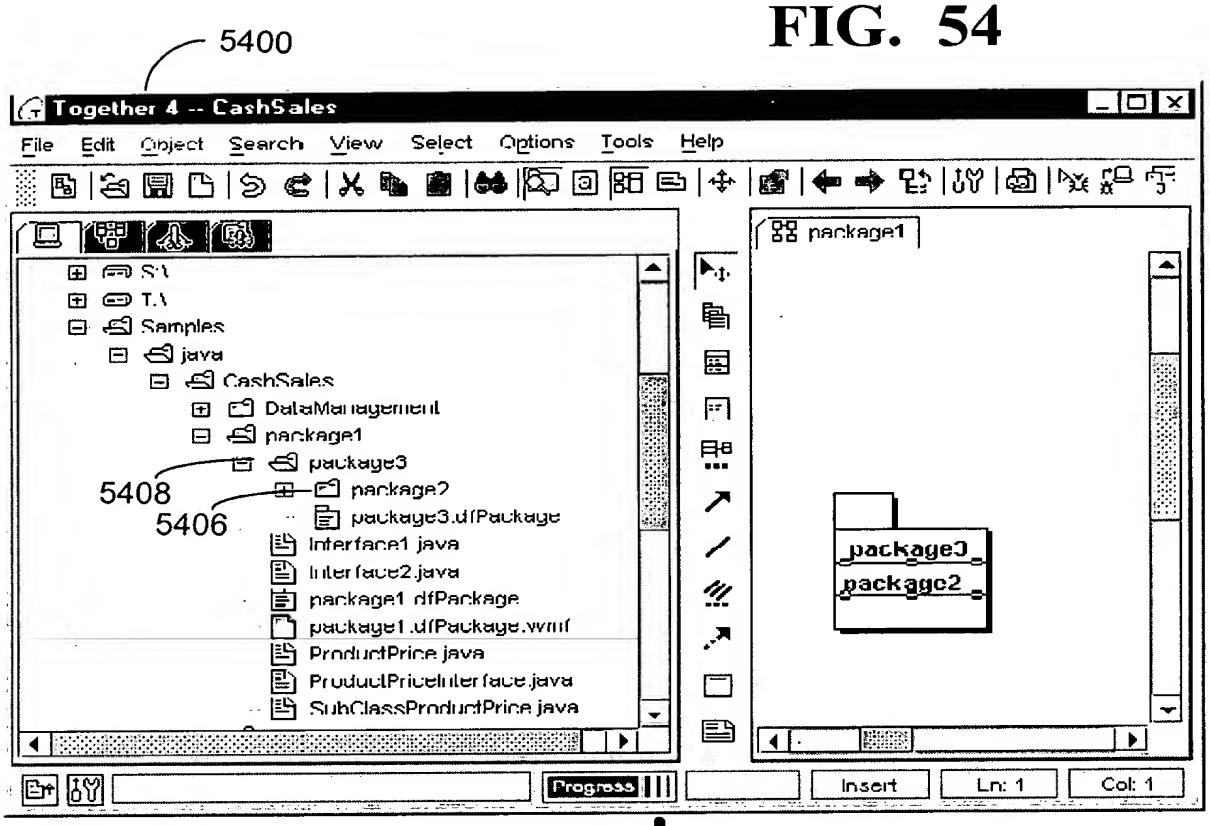
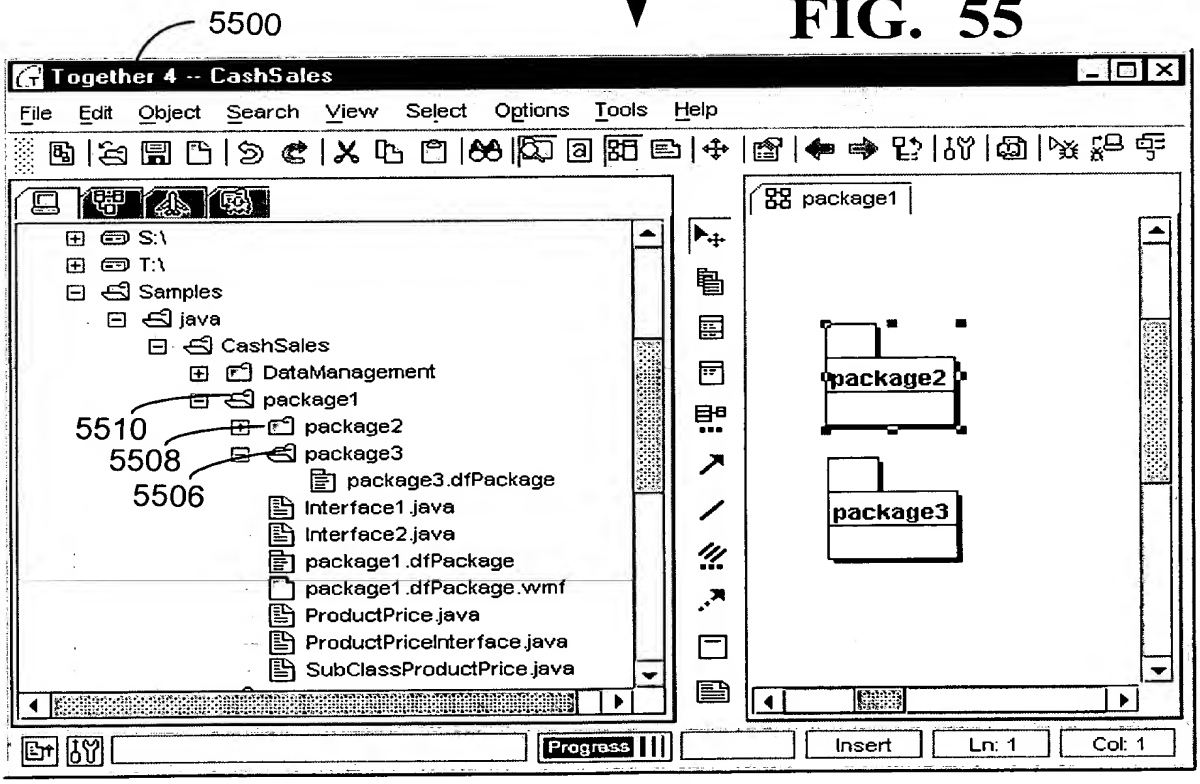

5400
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
S:\
T:\
Samples
java
CashSales
DataManagement
package1
package3
package2
package3.dfPackage
Interface1.java
Interface2.java
package1.dfPackage
package1.dfPackage.wmf
ProductPrice.java
ProductPriceInterface.java
SubClassProductPrice.java
5408
5406
package1
package3
package2
Progress
Insert
Ln: 1
Col: 1

FIG. 55


5500
Together 4 -- CashSales
File Edit Object Search View Select Options Tools Help
S:\
T:\
Samples
java
CashSales
DataManagement
package1
package2
package3
package3.dfPackage
Interface1.java
Interface2.java
package1.dfPackage
package1.dfPackage.wmf
ProductPrice.java
ProductPriceInterface.java
SubClassProductPrice.java
5510
5508
5506
package1
package2
package3
Progress
Insert
Ln: 1
Col: 1